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THE BUILDER

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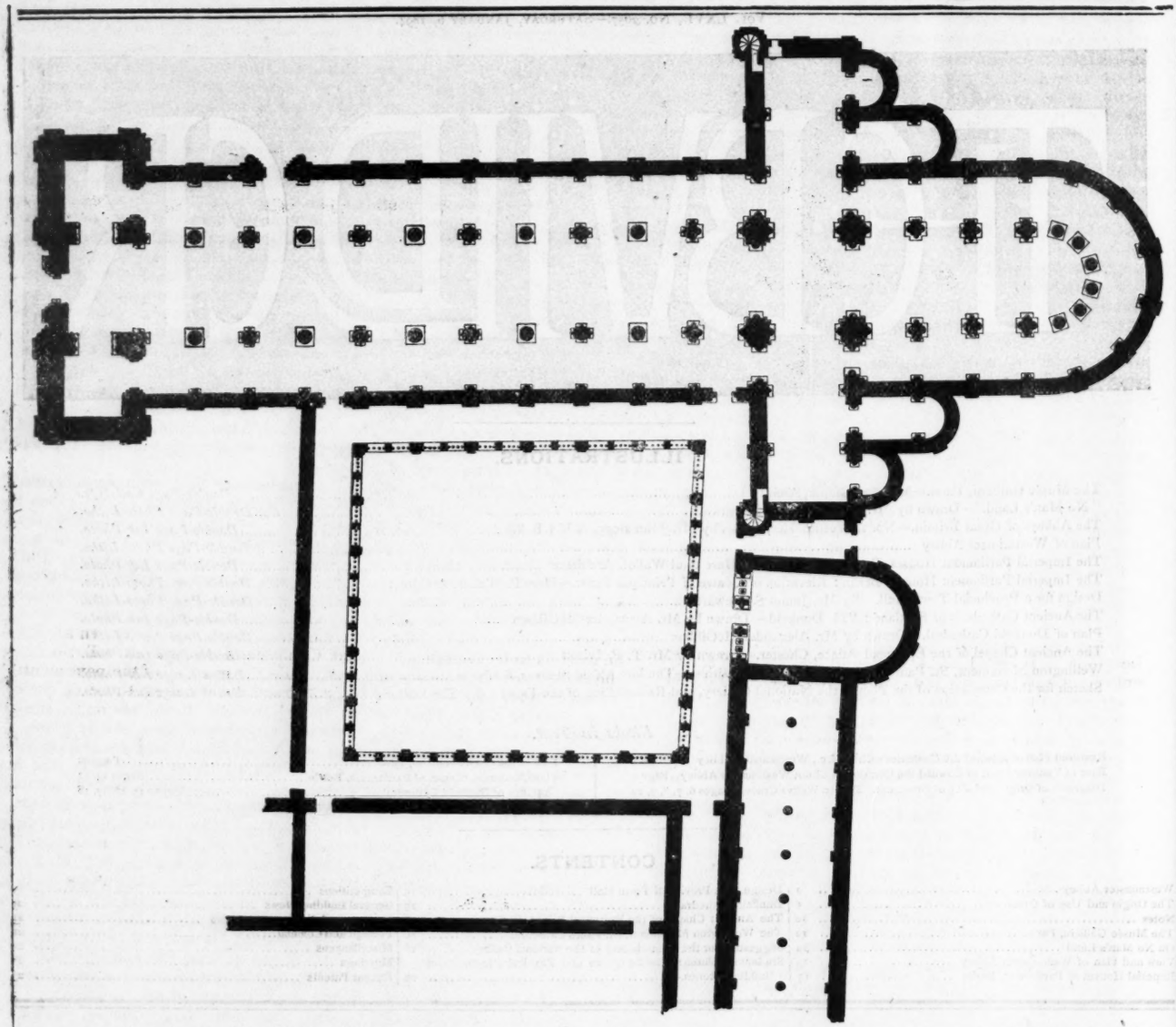
Westminster Abbey.

IN undertaking to give a series of illustrations of the ancient abbeys of Great Britain, it is a matter of course to commence with Westminster Abbey—"The Abbey" *par excellence*, the interest of which is not only architectural and archæological, but in a national sense historical. The whole site and its associations are bound up with the history of the English kingdom from its earliest period; and it would be impossible to name any other building in Great Britain which combines architectural and historical interest to the same extent and in the same manner. To do full justice to the subject within the limits of a single article such as this would be impossible; but we may endeavour here to give an outline of its history, combined with some critical considerations as to its architectural qualities.

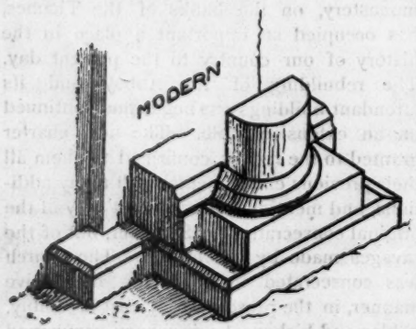
The period when Westminster Abbey was originally built is lost in remote antiquity; and the foundation which history fails to record is still further obscured by fabulous tradition. Thus we are told that when the first church was erected here on a small island in the midst of a marsh known by the name of Thorney, the fabric was consecrated by St. Peter in person, who was ferried over from the Surrey side of the Thames for the purpose. The site originally is likely enough to have been as described, for the configuration of the ground and its low-lying position bear testimony to its probability. The name, too, indicates a minster to the west, doubtless, of the Cathedral of St. Paul; and the dedication to St. Peter appears to point to a designed connexion between the two Evangelists. King Sebert, who founded the one, is credited with the erection of the other, and the record is reasonable. But his was not the first building on this site at least. Roman bricks were found within the area of the present abbey church when the grave of Geo. Edmund Street was dug, and although they may have been simply old material brought from the ruins of Roman London or from some building nearer at hand, yet they may have formed part of some fabric erected on the spot. But doubt as to this becomes reality by the evidence of a recent discovery which has not yet been recorded. When the grave for Lord Lawrence was dug, Mr. Wright, the Clerk of the Works, found a portion of a Roman wall *in situ*; and a fragment of a tile with a pattern on it, and some red mortar formed with pounded brick, are preserved in his office. There is nothing to show the nature of the building; only that it was of Roman date. The Roman sarcophagus, which will be referred to later, was doubtless brought from elsewhere. But its position when found, in relation to some building, points to the previous existence of a church on the same spot, at least as ancient as the stone cross lid which covers it. After enlargement by King Offa, the early buildings passed through the ordeal of ravages by the Danes, in common with so many others throughout England, the exposed position outside the shelter of the walls of London doubtless contributing to their fate. King Edgar restored them, and we hear of there being but twelve monks established there in his time.

We are on certain ground when we come to the days of King Edward the Confessor, whose palace, adjoining the monastery, on the banks of the Thames, has occupied so important a place in the history of our country to the present day. The rebuilding of the Abbey and its attendant buildings was begun and continued on an extensive scale. The new charter granted to the monks confirmed to them all their previous endowments, with many additions, and mention was made not only of the original consecration by St. Peter, but of the ravages made by the Danes. The church was consecrated in the most impressive manner, in the presence of a vast assembly, nobles and bishops having been summoned to be present from all parts of England. It occurred on the Feast of the Holy Innocents, December 28, 1065, and but a few days before the death of the king, who thus had the gratification of seeing the completion of



Restored Plan of Edward the Confessor's Choir, Cloisters, and Chapter-House, and the Norman Nave.—By Mr. J. T. Micklethwaite, F.S.A.

that portion of the work which he had founded. The buildings erected by him mark a clear and defined epoch in the history of our national architecture, and on this account it is impossible to devote too much attention to the consideration of the remains, all too few and unimportant unfortunately, that actually exist. These may be traced without much difficulty among the mass of superb Gothic work of later date, but the parts that remain are of the monastic buildings only, with one important exception, and the most elaborate parts have disappeared. Of the remains of one of the piers of the choir, on the north side, which still exists beneath the floor of the



Existing Base of Vaulting-Shaft of Edward the Confessor's Choir (North side).

present choir, we are enabled to give an illustration from a sketch furnished by Mr. Micklethwaite. Fortunately, the ground plan of the Abbey enables us to infer with fair probability as to the extent of the Confessor's foundation, and, in addition, the documentary evidences are important and more or less reliable. As is well known, the buildings are described as having been erected in a mode of construction not then usual in England, and the "costly expenditure" spoken of by William of Malmesbury and Matthew Paris alike is amply attested by the large area of ground which they covered. Water was laid on to the Abbey from a spring at the southern end of the present Serpentine in Hyde Park, where a tablet still attests the fact. Large and extensive drains, which in recent years have been mistaken for subterranean passages, still exist in many directions, showing that the sanitary arrangements of the establishment were on an extensive scale. The bulk of these drains, which are formed of masonry, are still in use, and their size affords easy reason for the belief that they were secret passages, while tradition affirms that one actually exists beneath the Thames, affording communication with Lambeth Palace!

Sir Gilbert Scott, in his "Gleanings from Westminster Abbey," quotes from the lives of Edward the Confessor, written between the years 1065 and 1074, wherein the church is described as being raised high, vaulted, with square and uniform ribs, circular to the east, double vaulting to the aisles, of two stories, the cross building contrived to contain the choir in the middle, and to support the lofty tower, which, we are told, had a timber roof covered with lead. A description, somewhat similar, written in Norman-French, during the reign of Henry III., just prior to the rebuilding, speaks of the church having been built with large square blocks of grey stone. The central tower is again spoken of, as well as the round east end, and two towers at the west front are named. Also a Chapter House, towards the east, vaulted and round; bells, sculptured stones, and storied windows. These descriptions, if exact and reliable, would indicate that the Confessor's church must have been a fabric conceived on much the same scale, although not the same design, as the Abbaye aux Hommes at Caen, and it may be, with some features which were only added to the latter building at a later date. We are not left to merely written description. The view of the church in the Bayeux tapestry indicates a building which corresponds fairly well with these descriptions, and it is remarkable for the loftiness of its central tower, which exceeds in the lightness of its proportions anything of Norman date that exists. In fact, the whole design may afford evidence that Norman architecture was not remarkable for heaviness of form when the fabric was relieved by high pitched roofs, steeples, and picturesque terminations. It may be remembered that the very truthful picture of Canterbury Cathedral, eighty or ninety years or so later than the date of the building under review, affords precisely similar evidence. The actual remains which exist are marked by the solid black portions in the general plan of the Abbey which will be found among our lithographed illustrations. Whether or not Edward the Confessor really completed the church is open to much conjecture. The extent of the undertaking and the shortness of the time

would appear to render this very improbable. It is true that, as we have seen, the narrative speaks of the two western towers, and the Bayeux tapestry view shows a completed nave; but this may have been an anticipation of what was intended or imagined, rather than a record of fact. Mr. Micklethwaite, in his restored plan of the church at the early Norman period, adopts the view that the Confessor's church only included the choir, the crossing, the eastern bay of the nave, the cloisters, and the southern nave wall, or its lower portion, as far as the northern cloister walk extended. In his plan, which is reproduced here, the portions attributed to the Confessor and the Normans respectively are shown in two different tints, which necessarily disappear in this black-and-white reproduction; but the above remarks will sufficiently explain the purport of his plan. Following the analogy of almost every other church, it may reasonably be supposed that the work was begun at the east end, leaving the completion of the western portion to a later time. The Confessor having been buried so soon after the consecration (in front of the high altar) indicates distinctly that the choir, at any rate, was completed. The central tower, too, would require the transepts for abutments, and some portion at least of the nave, for a similar reason.

Be this as it may, and recognising the fact that the documentary evidence, which has been briefly referred to, is in favour of the entire completion of the church by the Confessor, the belief that it was otherwise can only be reconciled to the evidences by the supposition that the nave was finished soon after the consecration. All the documents refer to a completed building. Beyond additions to the monastic buildings made in times following the Norman Conquest, partly referred to in documents, but more clearly indicated by the surer test of the architectural detail, no alteration appears to have been effected in the Abbey church. The Infirmary Chapel dated from the end of the century following the Conquest. But the thirteenth century witnessed great changes in the forms of our Norman minsters, partly necessitated by badness of workmanship and hasty construction, but still more so by the love of change, which in old times as well as now may have operated badly for the preservation of ancient work. We hear of the erection of a Lady Chapel in 1220, an addition doubtless at the east end of the circular aisle enclosing the presbytery. This was speedily followed by the demolition of the entire east end as far as might be necessary to make way for the magnificent fabric which still exists, the pride and boast of our country. The entire east end (except Henry VII.'s Chapel) with its ambulatory and radiating chapels, the transepts and their double aisles, the Chapter House and the first bay of the nave, date from 1220 to 1260, the work having been begun at the east and extended to the west, the portion of the nave being necessary for the support of the slender piers of the crossing, and to carry the work to a uniform line from north to south. The next few years witnessed an extension of the work of re-building the nave. Four more bays were completed, and then the remainder was left, most probably joined more or less well to the Norman portion not yet removed, although the walls of the new aisles were erected in anticipation of the entire re-building. In the shading showing the dates on the lithographed plan, we have followed a coloured plan prepared by Mr. Micklethwaite, who regards these four bays of the nave as also the work of Henry III., though executed a little later than the eastern bay of the nave. His reasons for this conclusion, which is a little at variance with the hitherto received dates, were stated in a paper read a few months ago at the London meeting of the Archæological Institute. The four bays in question have commonly been referred to Edward I. Mr. Micklethwaite admits that the portion undoubtedly attributed to Henry III. (up to the first eastern bay of the nave) must have been finished before the other four bays were commenced; but he points out that the treatment in the latter is essentially exactly the same as in the eastern bay; that the differences are only so slight as might have been expected to occur in the recommencement of the work after a very short interval, perhaps with a new set of builders, and with a desire to make some slight improvements on the previous work; the plan of the piers is improved, bronze bands are used with the shafts instead of marble, and there is a better treatment of the spandrils of the wall arcades; but the whole feeling of the work is the same. An examination of the building in reference to this theory convinces us that there is at all events great probability in favour of his view, and we have therefore adopted it. The nave remained in its incomplete state until well into the fourteenth century, when the clearstory and the vaulting were finished, and the long line of the nave roof was perfect from end to end. The west front, the central door, and the two towers remained incomplete, and although the early years of the sixteenth century witnessed the completion of the doorway, &c., the towers remained only at about one-half of their present height, with no gable to the front, until the time when the western façade was completed either by Wren or his pupil Hawksmoor, for there seems no positive certainty to which of these two architects the work is to be credited.

Old views of the Abbey are not uncommon which show the appearance of the fabric without the towers. Among these, those of Hollars are supposed to be the most truthful, though we have great doubts whether he merits the reputation for accuracy commonly accorded to him. His northern view indicates how completely the fine portal of the north transept was hidden by a large gabled porch of late date, removed in the last century. Other views indicate a lofty and thin spire, once intended over the crossing, which, fortunately, was never erected. Henry VII.'s chapel, with its delicate and intricate work, stands on the site of the old Lady Chapel of Henry III.'s time, and may be considered as the last addition made to the Abbey before the dissolution. Its erection has been followed by a long series of small remodellings and substitutions of new work for old, to the interior as well as the exterior, and it may be said that the scaffolding is never entirely away from the fabric, so large is its extent, and so costly to keep in repair.

On entering Westminster Abbey, the first impression of a visitor conversant with our English cathedrals must be, in regard to its unusual proportions. The beauty of the groined roof may be probably equalled, the length may be exceeded, but the great height in relation to the width, and its attendant beauty, is not seen elsewhere in England. The spectator feels that he is in a cathedral of the north of France rather than in an English one, until he observes the familiar forms of the detail which is the counterpart of work of the same date in our own country, only wrought in the most elaborate manner. Here is beautiful foliage, boldly undercut and admirably worked, rich moulded arches, polished Purbeck marble, shafted in profusion, and all the other items of detail which distinguish English work from French. The impression of foreign design, derived from the unusual height, is confirmed when the ground plan of the east end is considered. While previous minsters in England had, at most, a few semi-circular chapels radiating from the curved ambulatory, or aisle, surrounding the presbytery, as at Norwich and some few others, here, instead, are six half-octagonal chapels, while the space of a seventh, the Lady Chapel of 1220, occupied the central position. The lines of their setting out are perfect, and the difficult problem of their arrangement, which can be studied in its development from the commencement to its perfection in the earlier French examples, is here found in its most complete form. The general resemblance to the east ends of Amiens and Reims Cathedrals, if the plans be compared, will at once be apparent. On the north side, the square projection now known as Islip's chapel, and that of St. Benedict's on the south side, are suggestive of slender steeples, such as we see in the choir of the Abbaye aux Hommes, or those which once existed at Canterbury.

Within the presbytery, west of the modern face of the screen, buried beneath the superb mosaic pavement, are the bases of two of the piers of Edward the Confessor's church, of one of which we have given an illustration. They are of plain Norman form, very similar to the somewhat later work at Winchester and elsewhere. They are valuable as being the only known fragments yet met with of the destroyed building, and they indicate not only that the centre line of the existing church was the same as the former one, but also that the latter is wider. The Gothic building could, in fact, have been erected around and over the older one, so far as regards the central portion.

The pavement before the screen deserves special attention as being Italian Opus Alexandrinum, formed of rare marbles, derived most probably from the ruins of ancient Rome, mingled with our own Purbeck marble, and laid in a pattern which is completely Mediæval Roman. There is another mosaic floor of plainer design in the space behind the screen, so well known as Edward the Confessor's chapel. It will be noticed that, while the mosaics of the pavements are of porphyry and marbles, those of the tomb of Henry III. and in the shrine of the Confessor, where they remain, are of glass.

A small portion of the decoration of the celebrated coronation chair is of the same material. The importance of these art works, it may be remembered, is enhanced from the fact that, apart from the value of the design, there is but one other pavement of Opus Alexandrinum in England—that at Canterbury, where, however, the design is totally different; and no example at all of glass mosaic is extant except a small portion of an ancient Roman pavement at Aldborough. The detail of the screen, the eastern side being ancient, of fifteenth-century work, illustrates incidents in the life of the Confessor.

The transepts have double aisles, the arches being of acute lancet form. The former rose window of the north transept, lately replaced by a new one, was of fifteenth-century design, which it would have been a pity to remove, but that it was a copy executed early in the last century, and found to be all to pieces when the recent recasting of the front took place. The stained glass which then filled it has been replaced, but with the absurd alteration of cutting off the feet of the figures to make them fit the new tracery, which was apparently designed without any intention of preserving the old glass, although it is a good specimen of glass painting of the last century, when such works were hardly ever executed.

The nave presents a curious study of Gothic details of more than usual interest, from the fact that while the general design of the whole is similar in the early and the later parts, which harmonise well in this respect, yet the detail in each case indicates the varying periods of the execution; and the junction at the point where the works of the two periods meet is worthy of observation. The wall arcades have been of great beauty, but are now much cut into for the insertion of modern monuments.

In the space beneath the south-west tower, enclosed by a fifteenth-century stone screen, is deposited the old font of the Abbey of the same date; and the window over it, as well as the corresponding one of the sister tower, is filled with contemporary stained glass. The clearstory windows of the east end are also filled with old stained glass. The pavements are mostly modern, but several specimens of encaustic tiling remain in the chapels, while the Chapter House has a pavement all but perfect except for wear.

At the south end of the western walk of the cloisters an ancient arched recess is now being opened, and a mass of elaborately-worked late Norman detail, built in as old material, has been discovered. A good many pieces of similar stonework have been found in recent years. Elsewhere are deposited various interesting fragments of stonework, including a Norman shaft of later date than the Confessor's time—probably from the former cloisters.

Passing over many curious features of the monastic use of the cloisters, it will be noticed that the western aisle of the south transept is carried above their eastern portion. A reference to the ground-plan, and some irregularities of line,* furnish some evidence of interest relative to the size of the Confessor's church. Here the rebuilding joined the early work, and it is apparent that the existence of the east walk of the cloister rendered it imperative to modify the new aisle in the way named. The south wall of the south walk is the ancient north wall of the Confessor's Refectory, the masonry of which is here and there visible. The southern limit of the Confessor's cloister is thus determined, while the northern limit was the wall of the south aisle of the nave. One of the sides being thus determined, these considerations render it almost a certainty that his cloisters were of the same size as at present. Entering from the east walk, the superb double arch of the vestibule of the Chapter House, on which traces of colour decoration are still visible, is passed; and the Chapter House is reached. This beautiful apartment, with its restored vaulting and windows, is a good example of Sir G. G. Scott's genius in "restoration," here exercised with better reason and happier result than in some other instances; its ancient wall paintings are of much interest, and all can be studied with advantage. Its present beauty is in marked contrast with the appearance indicated by not very old views, which show it shorn of its window tracery and vaulting, and filled with shelves and presses wherein were stored the Records of England. Bad as are the acoustic properties, it is matter of surprise how the early Parliaments managed to get through their work within it. Perhaps the debates were shortened in consequence. To the south, the Confessor's work is very apparent, and in the carefully-locked Chapel of the Pyx, the plain cylinder shafts, with their semi-circular arches and vaulting, still remain. Although entrance is generally impossible, a bay or two of similar work is capable of being inspected at the southern end, and it will be noted that an attempt has been made to decorate the plain caps with sculpture at a later Norman period. The extent to which this practice was indulged in throughout England, and the manner in which Early Norman work has been made to resemble that of later date, has not even yet been fully recognised. It will be noted that the Confessor's masons have invariably worked their stones with diagonal tool-marks, such as exist equally in work after the Conquest. Over the range of vaults, which were formerly the monks' day-room, is the long gallery now used as Westminster School, formerly the monastic dormitory. The walls are, for the most part, of the Confessor's date, and at intervals a window or two may be inspected. One was laid open for inspection, in perfect condition, when the class-rooms of Ashburnham House were erected in 1883. It was wide for its height, the arch-stones and jambs being of Caen stone, the favourite freestone which is used throughout the early work; the stones were sawn, but the arch-stones were not truly worked, and the setting had to be accomplished by wide joints. All the freestone is set with very wide joints; those to some of the cloister stones measure $1\frac{1}{8}$ in. in thickness. When the works referred to were carried out a series of seven closets of the Necessarium were found, built above one of the sewers already referred to. The range had extended, apparently, beyond Inigo Jones's Ashburnham House. Below, part of the Misericorde was met with, and traces of inscriptions scribbled on the walls in idle moments remained; one of these, in black letter, having reference to a certain pie, referred to some good cheer of long past days.

Above, on the first floor, close to the closets, a Mediæval fireplace was found, with a comfortable arrangement of the hob, which enabled some creature comfort to be kept warm when wanted. Some three or four others have been found elsewhere from time to time. These curious relics of the past were all cleared away for the new works, as were also some traces of ovens, which were laid open for a short time at the south-west angle of Ashburnham House. They were formed of thin tiles. It is of the more importance to place their discovery on record since they were seen by but few people at the time, and the position of the Abbey kitchen has been the subject of discussion.

It may be added that the western gable of Ashburnham House is ancient, and it is evidently an external wall.

It is an impossible task to attempt to describe the monastic buildings fully. It may suffice to say that at the dissolution of the monastery the buildings were subdivided to form houses for the canons. No systematic rebuilding has ever taken place, but changes for individual convenience have constantly taken place, sometimes to reveal a curious feature of old work, sometimes to cover it over for centuries; and alas! sometimes to destroy it. The little cloisters open from the Confessor's work by a wide passage, the two arches to carry the walls overhead being ancient, and the barrel vault of recent date. The arches enclosing the cloister garth are of brick, probably the work of Wren, the wrought-iron gate being of passable design. The walls of the enclosure are of fourteenth-century date, built to a certain extent of very small stones, in which may be noted some freestone with signs of former use, notably the shaft of an early column next to Mr. Cheadle's door. At the south end of the west walk an early Norman window has recently been laid open. Its purpose was apparently to ventilate the sewer referred to. Above it is a curious piece of ancient construction. The ashlar work is arranged in squares laid diagonally, and between a course similarly laid, worked in dark stone.

These cloisters occupy part of the site of the infirmary, which opened into the Infirmary Chapel, which was dedicated to St. Catharine. Perhaps even the nave and aisles formed the infirmary either wholly or in part, the chancel being screened off as the chapel. The outlines of the walls and the bases of the shafts, hidden more or less by modern brickwork, alone remain. They were cleared to the extent seen a few years ago. They are of late Norman date.

The Jerusalem Chamber and adjacent buildings formed the Abbot's House, some of these being now included in the Deanery. The former chamber contains an admirable Elizabethan chimney-piece, and in the large window are some roundels of Norman stained glass inserted. The long table in what was formerly the Abbot's Hall is said to have been made out of some of the wreck of the Spanish Armada.

Some of the curious Elizabethan panelling in the neighbouring rooms would be all the better if it were cleared of its many coats of paint.

The present entrance to the cloisters on the west formerly led into the conversation parlour, and over, it very probably, was the guest chamber, or one of the guest chambers and its chapel.

The materials of the Abbey demand a passing note. The walls of the Confessor's work show a large amount of Caen stone, ashlar, and dressings, as we have already seen, backed up with rubble, the walls being of great thickness and solidity. The later works have walling of Kentish Rag, variously squared and laid, the bulk of the dressings being of Reigate or similar freestone, backed up with rubble, doubtless derived from the former buildings as far as it would go, the whole mass standing, not upon a feeble foundation, as is so usual in ancient churches, but upon a solid mass of concrete and rubble of considerable but varying depth.

This mode of construction was all the more necessary, since much of the subsoil is very loose sand; a good foundation when subject to compression, but which is liable to flow in a stream when dug through. Much of the Confessor's work was doubtless broken up to form this mass. The floor-level, after so many years of the rise of the external ground, is still in good proportion to it, indicating that it must have been once well above the present ground line.

A few blocks of unknown stones are occasionally met with, but the names of most can be determined. It may be worthy of remark that much of the work of the latter part of the fourteenth century is of Roche Abbey stone. A good deal of the cloisters is formed of it. It was used again in Abbot Islip's work. A single block of Quarr Abbey stone has recently been found high up in the walling by Mr. Wright. It had formed part of some Roman building, for red mortar still adheres to it.

Some few of the Mediæval bases had plinths of Portland stone, although the use of this material in London is supposed to date only from the seventeenth century; most of the later works of that century and since were done with Portland stone. The recent ones have varied, Chilmark stone being now used for the present works of refacing in progress on the south side.

From the crossing eastward to the Chapel of Henry VII., the Abbey is a vast store-house of Mediæval monuments, exhibiting some of the choicest specimens of workmanship in stone and metal, sadly desecrated, it is true, and despoiled of the many jewels that once added so much lustre to the shrine of the Confessor and its surroundings, but still a magnificent series. Besides these are a very large number of monuments of the Renaissance period, very stately, and often highly enriched with decorative work and heraldry, but their erection against the outer walls of the chapels entailed the removal of the delicate mouldings and carving of the arcarding, and however much we may admire the beauty of some of the monuments themselves, it cannot but be regretted that greater respect was not shown to the Mediæval work.

The Confessor's shrine, and the Royal tombs immediately surrounding it, form a very valuable series of monumental examples from the time of Henry III. to Henry V., including mosaic work, metal work, alabaster and stone carving in great variety. The mosaic has been much destroyed, both on the shrine and the tomb of Henry III., but enough remains on the twisted columns of the former, and on the

* A word of comment is required here. It will be observed that Mr. Micklethwaite's restored plan shows the lines of the cloisters very much askew, and on the lithograph plan, based mainly on a careful plan prepared some years ago by Mr. R. Phené Spiers, no such distortion is visible, though the western walk of the cloister is shown a little out of square with the nave wall, trending towards the west as it recedes from the church, and this, as far as we can judge, is correct; at least, if there is any deviation from the right-angle here it can hardly be more than that. Mr. Micklethwaite believes (as is indeed most probable) that the lines of the present cloister follow those of the Confessor's cloister; but if so, he has certainly exaggerated the skew element on his plan. On the other hand there is a perceptible bend westward in the line of the east walk of the cloister, at the point where it leaves the angle of the transept, as anyone may see by standing at the transept door and looking along the cloister aisle southwards; the bend here is as decided a deviation from the rectangle as Mr. Micklethwaite's plan shows, but this deviation is only, as far as the eye can judge, in this portion of the east cloister walk. This alteration of angle in the east walk is not shown in our lithograph plan, which in this small detail is therefore inaccurate. But the fact is that the various slight deviations of line in a great Mediæval building like this, built and added to at various periods, could only be realised with absolute accuracy by a survey with the theodolite, a piece of work we could hardly have undertaken, even if the authorities of the Abbey could have found it convenient to permit it. But we decline to believe, on the evidence of our eyesight (including a bird's-eye study of the cloister-garth from the roof of the nave aisle), that the present cloister is as much askew as the ancient one is shown on Mr. Micklethwaite's plan.

north side of the latter, to give an idea of the once gorgeous effect of these two examples, the earliest of the series. In strange contrast is the perfectly plain tomb of Edward I., without carving or effigy, situated immediately westward of Henry III.'s monument in the north-west angle of the Saints' Chapel. This monument is the only one remaining without decorative treatment, each of the others having some special point of interest: Queen Eleanor's beautiful monument, now much defaced, with brass effigy and elaborate wrought iron grille, remarkable as being of English workmanship; the tomb of Queen Philippa (1369), with its elaborate canopy work in alabaster, remaining on its south side facing the ambulatory, and the larger one over the head of the recumbent effigy; Edward III.'s monument, a late fourteenth-century tomb, having a wooden canopy, and a brass effigy, inscription, and mourners on the south face; and finally the much defaced monument of Richard the Second and his Queen, the canopy over painted with a representation of the crowning of the Virgin.

The tomb of Henry V. has fared worse than the others, and the rough wooden effigy has lost its covering of silver. The wrought-iron gates are noticeable, and the elaborate canopy and figure work of the chantry itself; the altar was that of the Annunciation.

In the floor of the Saints' Chapel, immediately below the back of the altar screen, is some of the "Opus Alexandrinum," and a brass of John of Waltham. East of the shrine is a slab with inlay of red and white mosaic, and a marginal inscription in Lombardic characters.

The beauty of the Royal monuments is, perhaps, excelled by that of the tombs north of the sanctuary—all of the Decorated period—commemorating Aveline of Lancaster 1273, daughter of William de Fortibus, Earl of Albemarle, and married to Edmund Crouchback, Earl of Lancaster, whose monument is the most easterly of the three. He died in 1296. The third tomb, that of Aymer de Valence (1323), is thus slightly later than the Crouchback, and of smaller dimensions on account of the space already taken up by Aveline's tomb. All three are covered with detail and foliage of the most exquisite kind, and a row of mourners on the ambulatory or north side deserves careful study. The spandrils of Aveline's tomb are particularly beautiful. The monuments in the chapels surrounding the Saints' Chapel, and forming the *chevet* round the apse, are of great variety and interest. They cover a period from the thirteenth century to the late Renaissance, and in one or two instances bringing examples of monumental work down to our own day. Marble work, mosaic, enamelled metal, and carving and effigies in marbles and alabaster, are all represented. The first chapel on the north side is that known as Abbot Islip's, with a loft over containing the wax effigies which were carried in front of the coffin at the funeral of those represented. The front of the chantry towards the ambulatory is a Perpendicular design of two stories, the lower portion pierced and admitting of a view of the chapel proper. The upper part is tabernacle work, forming a screen to the upper story, the string dividing the two being ornamented with Islip's name and rebus. His initials and a rebus are also on the wall over the entrance to the Chapel of St. Erasmus, which virtually forms a vestibule to the first of the octagonal chapels, that dedicated to St. John the Baptist. Three tombs with effigies of no particular merit in themselves divide the chapel from the ambulatory, and commemorate Bishops Colchester, Reithall, and George Fascet, Abbot of Westminster, 1498-1500. This latter has a stone canopy over it, and in the cornice moulding is one of those excellent examples of a decorative monogram, in which the Mediæval carver excelled. Against the north wall, standing in front of the arcade, is a small arcaded tomb, with little ornament but a delicate series of caps and trefoiled arches, said to be to the memory of Hugh and Mary de Bohun, *c.* 1300, children of Humphrey de Bohun, Earl of Hereford. In the centre of the chapel, taking up a large amount of its floor space, is the monument of Thomas, Earl of Exeter, who died 1622-3, a very large altar-tomb in black and white marble, with effigies of the Earl and his first wife. The marginal inscription is a good example of simple lettering, boldly designed, and round the tomb are several shields of arms.

The Hunsden monument, against the eastern wall of this chapel, is the most gorgeous and the largest of the Renaissance monuments in the Abbey. It reaches to the level of the springing of the chapel windows, and is a marvel of workmanship in marble and alabaster, and amongst its decorations are a series of shields showing the family connexions, fine examples of heraldic carving. The early wall arcading in this chapel, where not destroyed by the insertion of the monuments, is worthy of notice, also the vaulted vestibule known as the Chapel of St. Erasmus. Next in order is the Chapel of St. Paul, interesting chiefly for the fine altar tomb of Sir Gyles Daubenay and his wife (1507 and 1500 respectively), who was Lord Chamberlain to Henry VII. The altar-tomb is of Purbeck, the effigies of alabaster, elaborately coloured. Round the tomb are a series of shields with the arms of the family and their connexions, the whole being enclosed within a wrought iron railing of excellent design with standards at the angles, ornamented with the Daubenay badges. Altogether this is one of the best and most perfect specimens of its date remaining in the Abbey.

Forming part of the screen between the chapel and ambulatory is a Bourchier tomb with banners supported by a lion and an eagle, good specimens of Mediæval heraldic carving, and deserving to be carefully drawn before they become more decayed. The other monuments in this chapel are of the Renaissance period, and are not such as to call for any special mention.

The two corresponding chapels on the south side of the ambulatory contain a larger proportion of Early to Late monuments. The chapel of St. Edmund is particularly rich. Here are the effigies of William de Valence, of wood encased in metal, with the well-known enamelled shield charged with the Valence arms. The figure rests on a wooden tomb, in its turn carried by a stone base with the arms of the family and of England. On the opposite side of the doorway into the chapel from the ambulatory is the tomb of John of Eltham, a beautifully-modelled effigy in alabaster, the sides of the tomb retaining a large number of the "mourners," little statuettes, in this case excellent examples of the costume of the period. Close by this latter tomb are the children of Edward III., a small tomb, with the effigies recumbent on it, of William of Windsor and Blanche de la Tour.

In the centre of the chapel, on low tombs are three magnificent brasses, that of Eleanor de Bohun (1399) being by far the finest and the most perfect of those remaining in the Abbey. The workmanship of the brass effigy, canopy, and shields is of the highest order. Adjoining this is another large brass commemorating Archbishop Robert de Waldeby (1397), also represented under a canopy. The third is to Sir Humphrey Bourchier, killed at the battle of Barnet, with a good example of mantlings and heaume. Behind this in the wall is a tomb of Sir Bernard Brocas, having a recumbent effigy under a canopy. The tomb of Frances, Duchess of Suffolk (1559), is a marble altar tomb with recumbent effigy, notable for its heraldic work.

The remaining chapel—that of St. Nicholas—has a good stone Perpendicular screen dividing it from the ambulatory. The principal monuments of interest are a Renaissance tomb of Villiers, Duke of Buckingham, in black and white marble, occupying the centre of the chapel; a Perpendicular canopied monument for Bishop Sutton, and a brass of Sir Humphrey Stanley with three shields, and an effigy near the entrance. On a tomb above this is a delicate fragment of carving, supposed to have formed part of a reredos to the altar, which formerly existed where the monument of Lady Fane now is.

Passing up the steps to the chapel of Henry VII., the fine altar-tomb of that monarch and his Queen, standing in the centre of the apse, is the chief object of interest. It was the work of Torregiano, and is said to have cost 1,500*l.* The effigies are of bronze, gilt, the tomb on which they rest being of black marble, with a delicate frieze of alabaster and brass ornaments. Enclosing it is a magnificent screen of bronze, once ornamented with figure work, and exhibiting the familiar badges of Henry VII. in its panels.

Eastward, in the small chapel at the end, is the slab covering the spot of Cromwell's burial, but his body no longer rests there, having been removed two years after interment. A modern monument to the late Dean Stanley is interesting as a memorial of the present time, and for the excellent likeness of the recumbent effigy.

The chief monuments of interest in the aisles are those of Queen Elizabeth on the north, and of Mary Queen of Scots on the south, well-known monuments, with good Renaissance detail and effigies.

The small chapel of St. Benedict, leading out of the south transept, and in a corresponding position to that of Abbot Islip on the wall, has a large number of monuments, of which that of the Earl and Countess of Middlesex (1645), and the earlier altar-tomb, with effigy, of Abbot Langham, are the best.

It will be unnecessary to enter into a detailed description of the numberless monuments in the transepts. That of Chaucer in the south transept (of Purbeck marble), and of Sir Francis Vere and of Lord Norris in the north transept (two elaborate Renaissance examples), are the most noteworthy.

The north transept, known as the "Statesman's Aisle," is crowded with a very large number of monuments that are not, perhaps, conspicuous by their beauty, but which, nevertheless, form part of the history of the Abbey. The south transept is fully explained by its name of "Poet's Corner." The west wall, next the muniment room, is known as the "Historical Side."

The nave is likewise full of monuments, chiefly mural, their design being in most cases of no particular interest. One of the most recent however, that of the late Mr. Fawcett, by Mr. Alfred Gilbert, R.A. (placed here in 1887 to the late Postmaster-General) is deserving of notice as one of the most successful and original in conception of modern monuments in the Abbey, or anywhere else in this country. It is on the south wall of the south-west tower.

The aisle arcading of the nave was ornamented with armorial shields of the benefactors to the Abbey during its construction. Of these sixteen westward of the crossing were carved and painted. Four have disappeared, but those remaining are excellent examples of heraldry. The others, partially obliterated, were painted in the spandrils of the arcading, and are later in date.

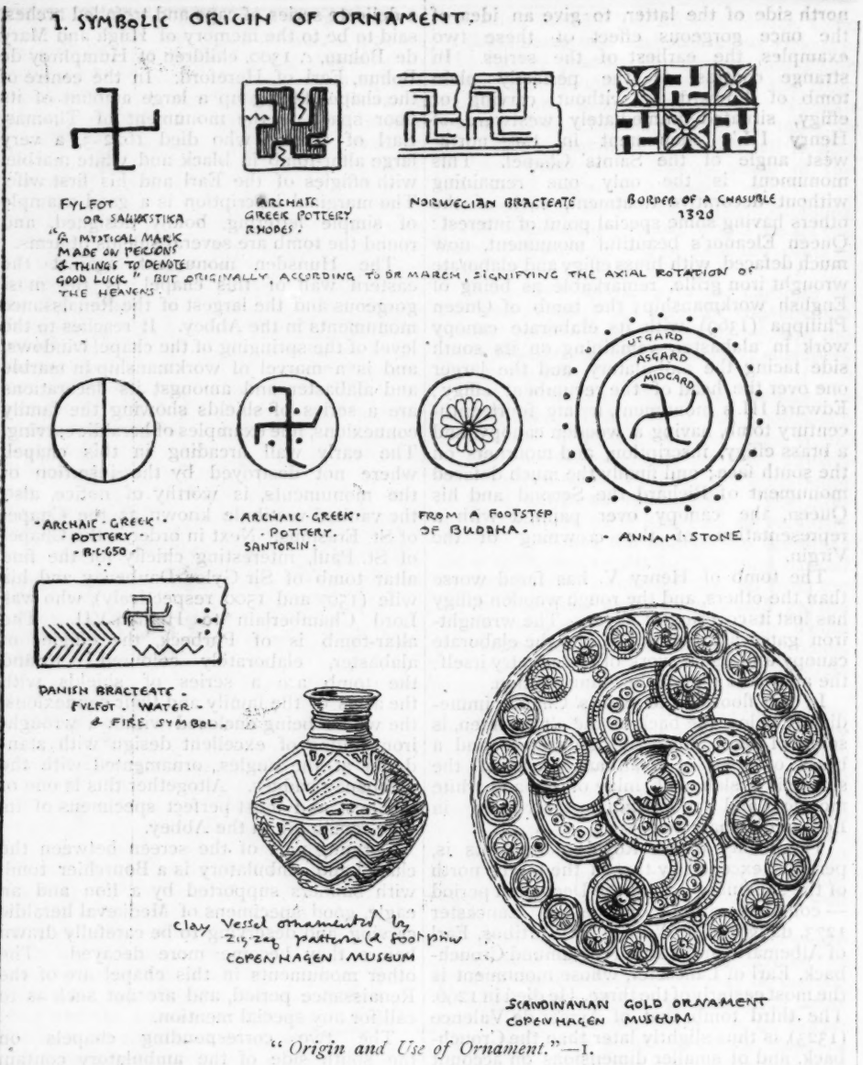
Under recesses in the south walk of the cloisters are monuments of early abbots, but the names on the stones above them are of modern date, and probably incorrect. On one is a low-relief effigy with pastoral staff.

The Abbey is not rich in ancient glass. The oldest portion is in the triforium of the presbytery, and consists of fragments of *grisaille* of early fourteenth century-date. In the east window of Henry VII.'s Chapel is a figure of the founder, and in the chapels and aisles of the same are many old quarries with initials "K. H." crowned, and badges—the portcullis, fleur de lis, &c.

The three windows of the apse were made up in 1753, with a mixture of old and new glass. The later date was found amongst the pieces of the new work. There are some

fragments also in the windows at the west end of the aisle. The glass in the great rose window is of the eighteenth century; that in the south dates from 1814. The modern glass in the Abbey is poor in the extreme.

To sum up the architectural estimate of Westminster Abbey as a whole, it may be said without fear of contradiction that its great glory lies in its interior, and that in addition to the quality of unusual height already mentioned, great part of its effect is due in the first instance to the erection of all the more important portion of the eastern end in one style, and that the style in which Gothic architecture was at its best—when it had gained great picturesqueness and freedom while still retaining a certain reticence in ornament and a noble purity of architectural lines; and secondly, to the architectural good sense shown by the builders of the later portion of the nave in carrying on the building on the same lines as the eastern portion, with only the unobtrusive differences which arise from variations in the mouldings and some smaller details, and which are not sufficient to destroy the unity of the whole design. Had the nave been completed with that frank adoption of the style of a century later, without any regard to harmonising it with existing work, which was usual with Mediæval builders, the effect of the interior would have been by no means so striking and impressive as it now is. Externally, there is much to interfere with our enjoyment; indeed it might perhaps be said that there are few English churches of the same size and importance which impress us so little externally. The most effective view is from the south-west angle of the cloister; not adopted in our view drawn by Mr. Begg, because it is only after all a very partial view. On the north side the greater part of the exterior has been restored, as one may say, to the bone, and for the most part badly restored; the only exception being Mr. Pearson's north transept, which is one of the most remarkable examples of the revival of the Mediæval spirit in modern times that could be found; and though we are averse to imitative restoration in general, there can be no doubt that the transept as it was before Mr. Pearson took it in hand was in a miserable state, and had lost almost everything of original value, and we do not quite know what better could have been done with it than has been done. The want of a central feature of some kind over the crossing is much felt; it might still be possible to supply this by a lantern of light construction. It is obvious from the design of the crossing piers that the building was not intended to have a tower at the crossing; probably this was due to the French influence under which it was erected. The upper portion of the western towers is another defect of the building, which has received praise far beyond its deserts. There is no doubt that the towers, whether designed by Wren or Hawksmoor, are admirably proportioned to the rest of the structure, and in that respect show the eye of a true architect, and when one is at a distance and cannot see the detail they pass well enough. But in detail they are wretched, and if they serve to show that their classic designer made a praiseworthy effort at Gothic detail, they also prove that he had no perception of or feeling for its true character. For our own part, we should be very glad to see them down, and replaced with terminations of the same general outline and more in keeping with the style of the substructure; not necessarily an imitation of Mediæval work, but something more in keeping with it. At the opposite end of the building is the only portion which, in its own style, is equally fine and perfect internally and externally, and which moreover has the interest of being peculiarly and specially English. It is not certainly in the highest style of Gothic architecture, and a severe criticism may well find fault with the busy over-elaboration of detail on every part, but it is a work carried out in every part with the highest artistic enthusiasm and striving after perfection; and it is rather a curious comment on what has been said as to the peculiarly French influence recognisable in other portions of the interior of Westminster Abbey, that a French art-critic who visited England for the first time a little while since told us that he had seen nothing in all London which delighted him so much as Henry VII.'s Chapel.


1. SYMBOLIC ORIGIN OF ORNAMENT.
FYLFOT OR SAUWASTIKA
"A MYSTICAL MARK MADE ON PERSONS & THINGS TO DENOTE GOOD LUCK." BUT ORIGINALLY, ACCORDING TO DR MARCH, SIGNIFYING THE AXIAL ROTATION OF THE HEAVENS.
ARCHAIC GREEK POTTERY RHODES.
NORWEGIAN BRACTEATE
BORDER OF A CHASUBLE 1320
ARCHAIC GREEK POTTERY. MYCENÆ.
ARCHAIC GREEK POTTERY. SANTORIN.
FROM A FOOTSTEP OF BUDDHA.
UTGARD
ASGARD
MIDGARD
ANNAM STONE
DANISH BRACTEATE. FYLFOT. WATER & FIRE SYMBOL.
Clay Vessel ornamented by zig-zag pattern & footprint
COPENHAGEN MUSEUM
SCANDINAVIAN GOLD ORNAMENT
COPENHAGEN MUSEUM

"*Origin and Use of Ornament.*"—I.

THE ORIGIN AND USE OF ORNAMENT.

BY MR. WALTER CRANE.

USE and ornament, curiously enough, considering their origin, are commonly spoken of as if they were the antithesis of each other.

A thing is estimated according to its possession of one or both qualities, each being apparently regarded as necessarily distinct, if not opposed.

"Is it useful?" "Well and good." "Is it ornamental?" "Well" if not "good." "Is it both useful and ornamental?" "How surprising!" But the withering contempt of an industrial age is reserved for the last desperate case, when a thing—or even a person, save the mark!—comes to be described as "neither useful nor ornamental."

This modern conception—this ordinary way of isolating use and ornament, regarding their functions as distinct, is indeed curious when we consider how closely associated—nay, how inseparable—they appear to have been originally.

Let us glance for a moment at the primitive and ancient use and probable origin of ornament.

The endeavour to look back over the whole flowery region of ornament, through all its wonderful and intricate growth through the ages, may seem like the effort to penetrate the tangled mazes of a tropical forest or to see the glimmer of daylight through it; but, nevertheless, I think we may fairly trace ornament back to two origins, or influences, which have more or less marked the course of its development.

These may be termed:—

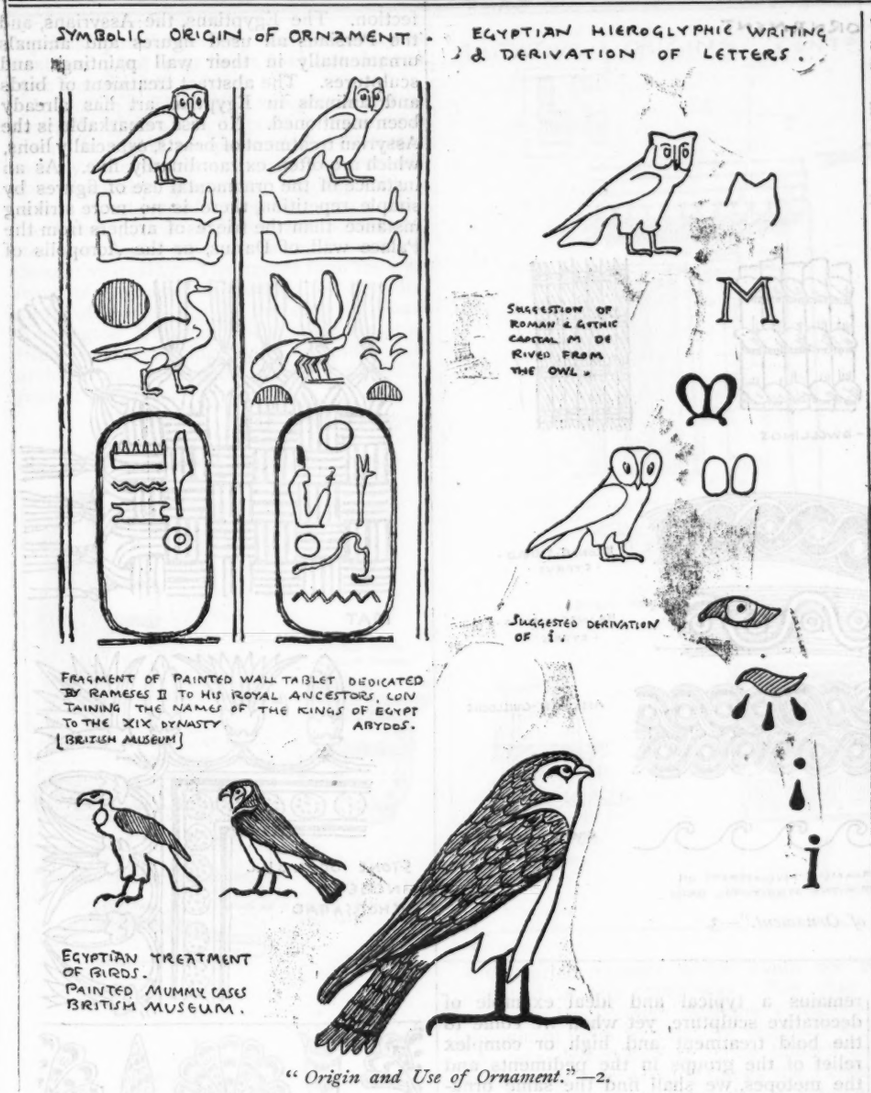
I.—*The Symbolic Origin,*
II.—*The Structural Origin.*

Both apparently are equally ancient, and date back to the earliest signs of man's intelligence and life upon the earth.

I have lately met with some suggestive papers by Dr. March, of the Lancashire and Cheshire Antiquarian Society, which throw a remarkable and interesting light upon the origin and meaning of ornament from this point of view, and I am indebted to his pamphlets for some of my illustrations.

Now there is one symbolic sign (known to archæologists as the Fylfot or Sauvastika) of very simple form, which is found very widely scattered among the relics of many different races and early peoples. "It is found," says Dr. March, "on archaic Greek pottery, on stamped clay of Swiss lake dwellings, adorning Latin inscriptions or Roman altars"; is common in India and Asia; is met with in Scandinavia, Iceland, Shetland, and Scotland; in Celtic Ireland, in Saxon England, as well as in Germany. The sign was adopted by Christians, is found in the catacombs of Rome, in the cathedrals of Winchester and Exeter, on a shield in the Bayeux tapestry, and on English Mediæval brasses. It also occurs on a bell at Hathersaye Church, dated 1617.

It appears to have originally signified the axial rotation of the heavens round the Pole


SYMBOLIC ORIGIN OF ORNAMENT.
EGYPTIAN HIEROGLYPHIC WRITING & DERIVATION OF LETTERS.
SUGGESTION OF ROMAN & GOTHIC CAPITAL M DERIVED FROM THE OWL.
SUGGESTED DERIVATION OF I.
FRAGMENT OF PAINTED WALL TABLET DEDICATED BY RAMESES II TO HIS ROYAL ANCESTORS, CONTAINING THE NAMES OF THE KINGS OF EGYPT TO THE XIX DYNASTY ABYDOS. [BRITISH MUSEUM]
EGYPTIAN TREATMENT OF BIRDS. PAINTED MUMMY CASES BRITISH MUSEUM.

"Origin and Use of Ornament."—2.

Star, but was later used as a benedictory sign or mark of good luck. When the feet were turned to the left the nocturnal movement of the stars was intended, and when the feet turned to the right the diurnal movement of the sun was supposed to be intended. It is frequently placed in a circle. A very few of its stages will suffice to show its incorporation into ornament, however. (See illustrations, 1. Further illustrations are referred to by the number of the group in which they occur.)

We may thus see how a sign purely symbolical, used as we should use writing, becomes in course of time a decorative unit in ornament.

The circle, a universal and important element in ornamental design, of all times and kinds, appears early as a symbol for the sun. There is a well-known pattern unit, a series of concentric circles surrounded by dots, which occurs on the Annam stone (1), and in Anglo-Saxon dress patterns in repetition, but it is also found with our first (axial rotation) sign in the centre. We thus get the movement of the stars as well as the Northmen's kosmic system, the first inner circle signifying Midgard, the earth; the second Asgard, the abode of the gods; the third Utgard, the world beyond inhabited by giants and evil spirits. So a good deal may be packed into the compass of a circle. Here is a piece of Scandinavian gold jewellery (1) from the Copenhagen Museum, which not only shows the axial revolution or solar sign (swastika) as a main feature, but in detail the ornament is entirely composed of rayed circles thus concentrically arranged.

Other symbolic signs, such as the meander or zig-zag for water and the fire-symbol, become, by use and wont, in course of time ornamental units repeated in patterns for their decorative effect (1). Here is an instance of the use of the zigzag as the entire ornament of a vessel, with the exception of the little footprints which fill the intervals suggestively. Thus for the fundamental elements of ornament and design generally, we go back to the universe itself—the sun, the stars, the movement of life, and early man's thoughts regarding them.

The letters of our Roman alphabet, which in their finest types retain a fine ornamental dignity and character in construction and line, and (as our designers and artistic printers know) have great decorative value when appropriately used in square masses, are descended from primitive signs and symbols full of significance, and they take us back to the picture-writing and hieroglyphics of the ancient Egyptians, who perfected a most elaborate system of symbolic writing, which, at the same time, whether we look at it in detail, in the design of its units, or its general effect upon a wall, is most striking and ornamental (2). The power of their sculptor and painter scribes in abstract characterisation, by means of line and mass evolved by the necessities of compression, and repetition is wonderful, and may be profitably studied by modern designers.

There are remarkable instances of symbolic human forms treated as ornament, and themselves giving rise to abstract forms and units of pattern, to be found in the carved work of the South Sea Islanders.

Polynesian ornament, such as is shown in these types, and in the derived ornamental forms of zig-zag (or shark's teeth) crescent-curves, and varied circles carved in constant repetition over the whole surface of the sacred "paddles" so called, is, according to Dr. March, who argues with great force, a mythography, or a symbolism of origin and descent, and these "paddles" are really tables of the descent of tribes, so that here again, if this is so, we have an instance of ornament arising out of symbolism and picture writing.

II.—*Structural Association and Derivation.*

Structural imitations in the early forms of ornament betray their origin in the necessities of handicraft and use.

We get the chequer from the plaiting of rushes or fibre in a mat, or the crossing of threads in weaving (3).

In the wattled work on the walls of primitive dwellings pattern is identical with structure. One was found at Ebersbrog impressed on clay, the clay being smooth on the other side. It is not difficult in following this clue to trace the evolution of certain well-known types of pattern (3).

We thus get two universal principles in ornament construction, the meander and the scroll, which through all their variants may yet be traced back to their primitive origin in wattle and wickerwork. There is a family or type of border design, too, which apparently had its origin in fringes and tassels formed by tying up the loose ends of woven or plaited rugs. We see it in marked development in Assyrian decoration—a people given to use pavilions and awnings with pendant fringes and tassels, and also fringed garments and rugs (4). We may trace the motive in evolution from the primitive mat with tied ends, through Assyrian, Persian, Egyptian, and Indian forms, to the so-called "honeysuckle" of the Greeks.

Another marked structural source of ornamental motive may be found in what was probably the earliest form of handicraft—"the fastening of two things together" such as a stone axe to its handle by means of fibre or thong.

The crossing and overlapping of successive layers of such strings or thongs, producing a kind of inseparable association in the mind, was perpetuated in other materials as ornament, when it was no longer functional.

Such motives allied with the spirals of the cord or rope—a common form of moulding on early pottery—led to a whole family of characteristic ornament, the convoluted knotted and interlaced ornament (3 and 5) becoming a marked development of the Celtic race, although its prototype existed among the Asiatic peoples.

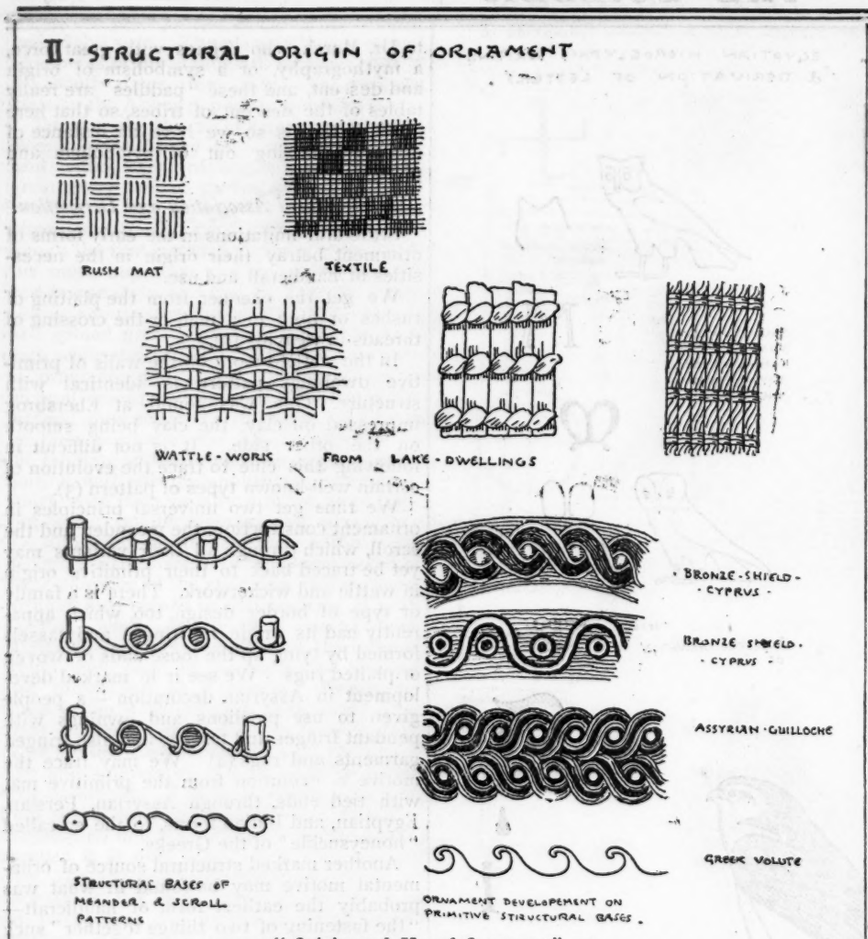
It is difficult to resist the conclusion that the Norman zig-zag moulding belongs to this family, while its association with woodwork comes out in the common form of capital used in this period, which suggests the round branches of trees cut off at the top (5), bound at the junction with the shaft by a fillet, and sometimes showing the line of the bark.*

When we come to architecture, however, we find an abundance of patterns founded on structural motives, some of which have been already alluded to. It is well known that the forms of Greek architecture owed their origin to the necessities of wooden construction, sufficiently proved by looking at this tomb at Antiphellus, Asia Minor (6), which imitates in masonry the projection of the tree stems, forming the ceiling of the chamber, and from these ends, squared, was developed the guttæ, and afterwards the dentil ornament.

It seems probable, as some think, that the well-known egg-and-tongue moulding is another development from the same kind of structure, the egg representing the end of the timber, and the vertical dart or pendent the hanging ends of the ligatures which tied the beams together or fastened the shingles of the roof (6).

The working of thin plates of metal in repoussé for wall coverings and shields would have its influence; and its readiness in the forms of thin bands and wire to twist into spiral curves, as in jewellery, no doubt also

* We cannot agree with Mr. Crane in this idea as to the evolution of the Norman capital.—ED.



"*Origin and Use of Ornament.*"—3.

was a source of motive in early ornament, though metal, perhaps, was subject, in the first place, to the influence of its predecessors, wood or wattle.

Throughout architecture, as has been said, in all the various forms of its development, we may trace the close connexion between use and ornament; constructive uses leading to motives in ornament—Ornament, as it were, making use of Use—to further its own development, the different types and treatment of ornament corresponding so closely with structural characteristics that periods and styles of architecture can be distinguished by their ornament alone, much as a tree may be known by its leaves or flowers.

Thus, the architecture of the lintel in Greece and Rome naturally developed horizontal mouldings and beadings in cornice, frieze, and entablature, relying for structural emphasis upon these, and the capitals and bases of the columns, as well as on the vertical fluting of the latter: reserving the interstices of the structure—the hollow of the pediment and the metopes, or panels of the frieze between the triglyphs, for figure sculpture, as in the Parthenon; while the frieze of the outer wall of the actual temple—the cella—within the outer row of columns is treated as a continuous band of delicate sculpture. Now I think one may say that the human figure was really the ornament of the Greeks, just as it is in a different way with the Polynesians. They used it freely, and designed their groups and friezes on ornamental principles, while their ornament proper is comparatively restricted and limited to borderings which show a constant recurrence of the same types. In fact, their buildings and ornaments might be described as a framework for their sculpture, except that all together form so perfectly united a whole.

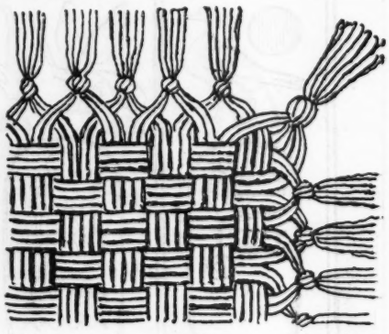
In the well-known frieze of the Parthenon you may trace a certain subtle rhythm and counterbalance of parts, whilst its general flatness of relief unites it with the wall. It remains a typical and ideal example of decorative sculpture, yet when we come to the bold treatment and high or complex relief of the groups in the pediments and the metopes, we shall find the same ornamental principles governing them, as regards treatment in relation to the spaces they fill, as well as in their ornamental relation to the building as a whole, to which they give point and meaning.

The same ornamental use and mastery of the figure is shown in the exquisite vase paintings of the Greeks, where again the shapes of the vessels (instead of architectural spaces) seem to have suggested the grouping and spacing of their surfaces.

In one cylix by Nikosthenes, we may note the way in which the beautiful lines of the ships and curves of the sails repeat one another in variations, at the same time falling into and expressing the contours of the vessel they decorate.

In another well-known design, too, of Peleus wrestling with Thetis, how finely thrown is the group in the circle; how ornamental in line and detail. There is, too, a curious correspondence in form to be noted between the interlocked hands of the wrestlers and the form of the fret or key pattern forming the enclosing border, which looks more than accidental, and may point to its actual meaning; though I believe the fret itself is supposed to have a textile origin. It is a pattern that constantly re-appears, and is certainly remarkable for one thing—that it illustrates in a simple manner one very important principle in ornamental design, I mean a certain equalised distribution of line or form in relation to its ground; a principle which, though capable of being treated with considerable elasticity and variation, yet runs through the whole of ornamental design, and really defines it perhaps more than any other from purely graphic or depictive design.

The Greeks, however, were not alone in the ornamental use of the figure, though they developed it to such freedom and perfection. The Egyptians, the Assyrians, and the Persians all used figures and animals ornamentally in their wall paintings and sculptures. The abstract treatment of birds and animals in Egyptian art has already been mentioned. No less remarkable is the Assyrian treatment of beasts, especially lions, which are often extraordinarily fine. As an instance of the ornamental use of figures by simple repetition, there is no more striking instance than the frieze of archers from the Palace wall of Darius, or the Acropolis of



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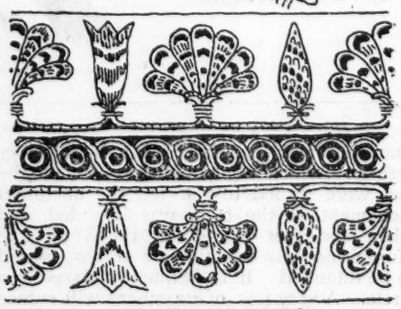


ENAMELLED TILE ASSYRIA.

GREEK ANTHEMION ORNAMENT.

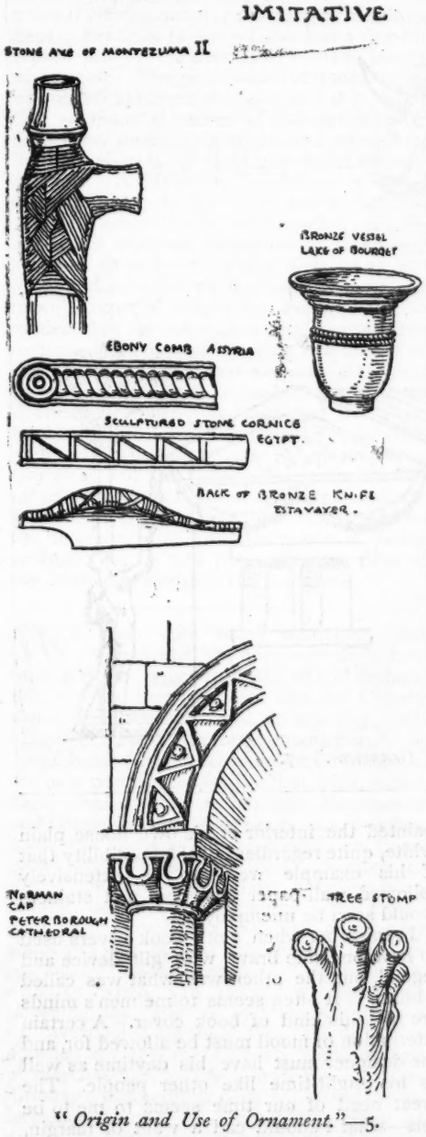
"*Origin and Use of Ornament.*"—4.

Susa, destroyed in the reign of Xerxes, 488-486 B.C.), built up in separate bricks, coloured and glazed, each figure being a duplicate of the other, though alternating in details of pattern and colour, forming a horizontal pattern in coloured relief. A good coloured cast may be seen in the Persian Court in the South Kensington Museum. I believe we owe its presence there, as also other very valuable additions for decorative and architectural study, to the artistic insight of Mr. Armstrong.

The repetition of figures as ornament or in ornament is often declared to be wrong in principle; but here at least is an instance of its ornamental success. Much no doubt

depends upon the severity and simplicity of treatment; but what in art does not depend upon treatment?

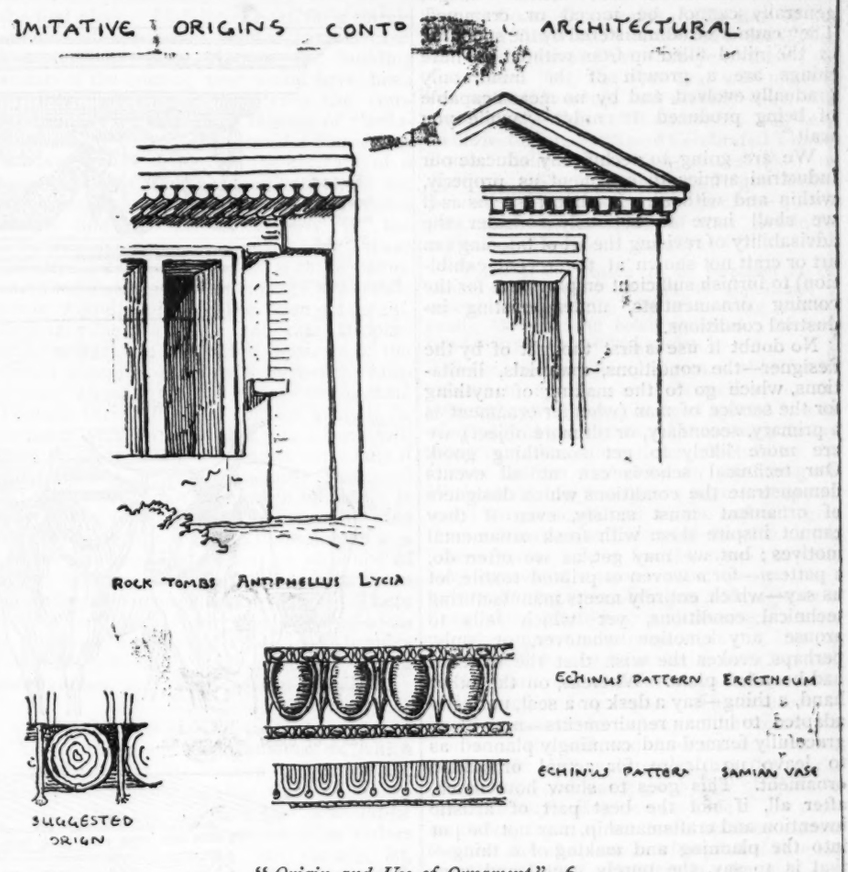
In Gothic architecture, too, figure sculpture generally holds a very important ornamental place, the figure sculpture of the thirteenth century in some instances reaching remarkable simplicity, grace, and dignity, with a certain sweetness of expression which rivals the finest period of Greek art, possessing, too, the same rare ornamental sense or decorative quality. The figures from the west front of Auxerre Cathedral, for instance, casts of which are to be seen in South Kensington Museum, or the noble sculpture from Amiens uniting figure sculpture with architectural ornament and construction in perfect harmony.



"*Origin and Use of Ornament.*"—5.

For the most beautiful ornamental use of animals combined with floral pattern we can have no finer masters than the Persians, and no finer instances of decorative combination and treatment than the finest kinds of Persian carpets, such as we are fortunate enough to possess at South Kensington Museum. It seems hardly possible that refinement and elegance, and graceful and romantic invention could further go than in such works as these; and their peculiar beauty is owing to the perfect unity of design and material—affording fresh instances of the complete harmony and inseparability in the finest decorative work of use and ornament, and of the most perfect use of ornament.

The ornamental value of animal forms is obvious when treated with such refinement and skill. They give life, movement, and mystery. They enable the designer to pleasantly break and vary the field of pattern



"*Origin and Use of Ornament.*"—6.

with varied masses which could not be obtained in any other way. Not that I suppose the Persian designer consciously thought of them in this dry technical way. He was determined to enjoy himself and bring in all the exciting things the Persian mind loved to see, and probably only thought that when the carpet was woven and spread what a fair flowery Paradise, peopled with noble beasts for the hunter, he could suggest; and his unerring instinct, perfected by centuries of living tradition, enabled him to do so in a way that, I fear, will need some other inspiration than the technical school can supply for us to get within measurable distance of.

Yet why should not our designers be English in the same way that these were Persian? Why not put the things we love in our designs, and not try to imitate Greeks or Romans, or modern French, or anybody else? Are there any fairer things than English flower-gardens and English woods and meadows in the spring, or those green carpets peopled with spotted deer?

I have alluded to the symbolic origin of ornament, a symbolism, which, narrowed and specialized—domesticated, as it were—still survives in heraldry, the earlier beauty and spirit of which was probably owing to the necessity of decorative frankness and emphasis—the necessity of legibility, in fact—which still rules as a primal requirement in the design and colour arrangements of flags and banners.

Another important characteristic in ancient and Mediæval ornament was its narrative capacity. In the days when ornament was taken seriously, when books were few, and only read by priests and scholars, decorative and pictorial art were then united in ornament, and, in this form, filled the place of books for the many. Its clear language of colour and line spoke from the walls of the churches and public buildings, embodying the most cherished articles of faith, and the legends dear to the heart of the race, the people, the country—after all, perhaps, the most public form of public library; a living and visible vernacular, for which one would cheerfully exchange not a few newspapers and penny dreadfuls.

Under an industrial system, the object of which is not to produce things of beauty and joy for ever, but chiefly something that will sell—a system under which all labour has been differentiated and finally dominated by machine production—it is not surprising that the industrial right-hand should not always know or understand what the ornamental left-hand is doing—or *vice versâ;* while the ceaseless progress of mechanical invention (where the real invention and interest of the age is to be found) constantly, by the introduction of new methods, tends to outstrip artistic or ornamental invention, power of assimilation, or adaptability with which, nevertheless, mechanical invention ever seeks to unite itself—nay, is compelled in some way so to do, to make its results available and attractive to humanity. Thus quite a new use for ornament has been discovered in modern manufacture and trade. The utilitarian cannot afford to ask, "What is the use of ornament?" For ornament covers a multitude of sins. It makes goods saleable. It gives smartness to the cheap, and compels the poor material to look winsome and gay. Ornament can be persuasive in a thousand little ways—commercial in short. But then it ceases to be ornament and becomes a commodity.

Yet everything is ornamented now. Furniture is cut, carved, chamfered, inlaid, brass-mounted, gilded, painted, French polished within an inch of its life. Everything cries out, as from the shop window, "Look at me!" as if it were a mirror—as indeed it is of the taste (or necessity) of its maker, seller, and buyer.

Alphabets, Grammars, Dictionaries, Handbooks of Ornament increase and multiply. We may study samples of all the ornament that was ever devised by restless man in our museums. We have, ornamentally speaking, been everywhere and seen everything. What wonder that with such masses of material to be assimilated, we sometimes see symptoms of ornamental indigestion?

Thought, refinement, taste, or true feeling,

selection, invention, and artistic insight generally cannot be forced or crammed. They cannot be administered by the spoonful, or the mind filled up from without. These things are a growth of the mind, only gradually evolved, and by no means capable of being produced to order—"while you wait."

We are going to technically educate our industrial armies to ornament us properly, within and without. It almost seems as if we shall have to seriously consider the advisability of revising the art of tatooing (an art or craft not shown at the recent exhibition) to furnish sufficient employment for the coming ornamentists, under existing industrial conditions.

No doubt if use is first thought of by the designer—the conditions, materials, limitations, which go to the making of anything for the service of man (whether ornament is a primary, secondary, or ultimate object), we are more likely to get something good. Our technical schools can at all events demonstrate the conditions which designers of ornament mnst satisfy, even if they cannot inspire them with fresh ornamental motives; but we may get, as we often do, a pattern—for a woven or printed textile, let us say—which entirely meets manufacturing technical conditions, yet which fails to arouse any emotion whatever, or only, perhaps, evokes the wish that the material had been left plain. Whereas, on the other hand, a thing—say a desk or a seat, perfectly adapted to human requirements—may be so gracefully formed and cunningly planned as to leave no desire for actual or added ornament. This goes to show how much, after all, if not the best part of artistic invention and craftsmanship, may not be put into the planning and making of a thing—that is to say, the purely useful and constructive side, if always controlled by the sense of beauty—a sense which may govern the smallest detail of construction, as well as the most delicate surface ornamentation.

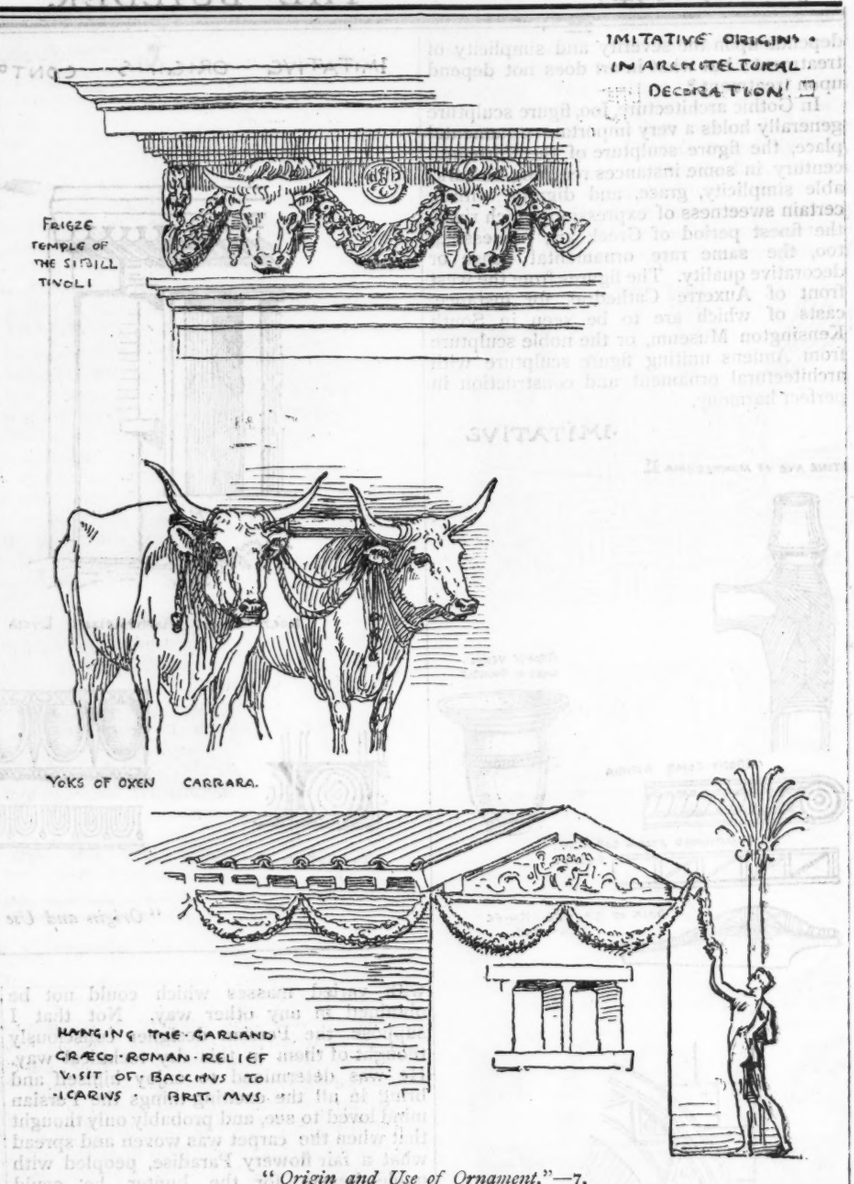
So that, according to this view, beauty is not only "skin deep."

We might, indeed, define the ornamental sense as the constructive sense dominated by the sense of beauty.

The ornamentist is now, however, chiefly concerned with the structure of surfaces, since ornament has now what may be fairly called an independent existence. It is designed by specialists quite apart from the actual fashioner and manufacturer of the objects and materials ornamented. Every species of floral growth, every style, every period, everything under the sun, one might say, have their counterparts in ornamental design. It is a distinct language of expression in art. Whole schools and styles of ornament, like the luxuriant efflorescence of summer, have grown up, have fascinated us, and have passed to decay.

But throughout all its changes and phases of development there is traceable the recurring tendency to return to its first principles of structural suggestion and control. Ornament never seems able to sustain vigorous and healthy life and invention if it becomes inorganic—that is, unrelated to architecture, to construction, and the modifications of method, tools, and materials. The finest forms of ornament remain those which acknowledge a structnral basis. We cannot, I think, therefore, in studying the true and beautiful use of ornament, dwell too much on this necessity, which justifies a real preference for the organic types, rather than the inorganic and unrelated types, whatever accidental charm they may sometimes possess, for the one means vitality and growth, and the other decadence and decomposition.

If we go on tolerating ugliness—brutal outrages on the eyesight—whether in the solid form of iron or brick monstrosities, or in that of the ephemeral but omnipresent poster (especially when it flaunts in the green fields) we shall be in danger of losing our eyesight altogether, so far as it is concerned with the perception and production


IMITATIVE ORIGINS IN ARCHITECTURAL DECORATION
FRIEZE TEMPLE OF THE SIBILL TIVOLI
YOKS OF OXEN CARRARA.
HANGING THE GARLAND GRÆCO-ROMAN RELIEF VISIT OF BACCHVS TO ICARIVS BRIT. MVS

"*Origin and Use of Ornament.*"—7.

of beauty. The worst of it is that there are so many apparently conflicting ideas about as to what is beautiful, though there is a beauty which is universally acknowledged in the long run.

Some confusion may arise from the differences between conception and execution—selection and treatment. We often see a good motive poorly carried out, and, still oftener, perhaps, a bad or ugly motive worked out with wonderful skill and force.

It is not the mere presence or absence of ornament that settles the matter. A work, a picture, or piece of furniture may be beautiful either with or without ornament; or it may be ugly both in the lack of ornament or with its excess. The very excess of ornament may be due to the feeling that we cannot have too much of a good thing—a fatal mistake, of course.

If moderns are fond of external beauty in anything like the same degree as the ancients and Mediæval people were, they must be so fond of it that they cannot help gobbling it up whenever they find it. That, at least, would account for its scarcity. Jaded with the mass of ornament (as she is generally understood) one is apt to turn with a sense of relief to simple structure and plain surfaces to primitive and artless designs. Some of us are ready to declare that we would rather have a trestle table and a carpenter-made settle than all the Ormulu and Buhl in the world.

A distinguished member of the Arts and Crafts Exhibition Society, remarkable for the intricacy of his own work in ornament, has painted the interior of his own house plain white, quite regardless of the possibility that if his example were to be extensively followed wall-paper designers and stainers would soon be unemployed!

I remember when cloth book covers used to have one side brave with gilt device and legend, but the other was what was called "blind." It often seems to me men's minds are like this kind of book cover. A certain alternation of mood must be allowed for, and the designer must have his daytime as well as his night-time like other people. The great need of our time seems to me to be this—what I should call a want of margin, for rest, reflection, recuperation, and, I think, sooner or later, like "The Living Wage," it will have to be won for all of us, and then I doubt not that our creed of ornament will improve, as well as the aspects of life in general, since, until we have learned how to live, and what use to make of our lives, how shall we know how to adorn them, as we have seen that ornament cannot be divorced from construction? WALTER CRANE.

LETTER FROM PARIS.—Owing to the space occupied this week by special articles and engravings, we are compelled to hold over till next week our usual monthly "Letter from Paris."

PARTNERSHIP.—Mr. W. E. Baker and Mr. F. S. Ham, formerly connected with the well-known firm of Messrs. J. Stone & Co., of Deptford, have resigned their appointment and commenced business as manufacturers of fittings for water supply and sewerage, under the style of Ham, Baker, & Co., municipal engineering works, 13, Grosvenor-road, Westminster.

NOTES.

THE scientific and sanitary dissipations of the Seventh International Congress of Hygiene and Demography, held in London, seem but as yesterday, but we are reminded of the lapse of time by the fact that the Eighth Congress, to be held at Budapest in September of this year, is in active preparation. A circular from Dr. Coloman Müller, the general secretary to the Congress, informs us that the executive committee have now finally arranged the time and order of transactions of the Congress. The preliminary meeting of members will take place on September 1, the formal opening on the 2nd, the sectional meetings on the 3rd, 4th, 5th, 7th, and 8th, and the general closing meeting on the 9th (Sunday). September 6 is to be set apart as a day for repose, and for excursions or visits to places of interest. The programme of questions to be treated has been sent out, and it is stated that so many promises of communications have been received from eminent scientists, that the success of the Congress is already assured. A Hygienic Exhibition is being arranged from which it is stated that all "trade element" will be excluded; a promise often made on occasions of this kind, and not often kept. There is to be an important discussion on diphtheria, in regard to which special efforts are being made to render this an important and exhaustive treatment of the subject. This is a matter of interest to architects and sanitary engineers as well as to doctors, considering the close connexion which is admitted to exist between diphtheria and drainage. English architects who may wish to attend the Congress will find themselves in the way of other attractions besides sanitary ones; the town itself is a fine one, and an expedition to Belgrade and Constantinople is being arranged for, to take place after the close of the serious business of the Congress.

WE meet with many reminders that Manchester has now become a harbour and port, apart from the official declaration, and the *Gazette* notice that the County Court of Lancashire held at that city "will henceforth have Admiralty jurisdiction." In *Bradshaw's* January steamer list, for instance, the new port figures for the first time, notice being given of services between Manchester and Glasgow, Aberdeen, Leith, and Dundee, while the General Steam Navigation Company are arranging a weekly service to Rotterdam and Amsterdam. It has been pointed out that the opening of the Liverpool and Manchester Railway over sixty years ago was at that time looked upon as practically making a seaport of Manchester, a letter written in December, 1829, prophesying the "ruin of half the warehouses in Liverpool" through the facilities thus afforded for the marvellously rapid transit of merchandise to the inland town. Last Monday's proceedings were witnessed by an immense throng of sight-seers, many of whom were interested in a very literal sense; indeed, there were probably very few among the thousands who took part in or witnessed the triumphant procession along the Canal, who will not be affected in a greater or lesser degree by the success attending the venture. It is worthy of remark here that, prominent among the craft "on view" on Monday, was a boat loaded with granite setts from the Welsh quarries for the Manchester Corporation.

WE have but lately alluded to the great activity of the Public Works Offices at Berne, where the chiefs of the Federal and the Cantonal Building Departments seem to imitate the example set by the energetic City Architect, Herr Hodler. The chief event in the building annals of Berne for 1893 was the completion of its new National Museum. In the present year several important works are to be commenced; the new Federal Council Hall in the first place. Had it not been for a certain amount of opposition, headed in this case, however, by Herr Hodler, the building annals of the coming year would have been far more remarkable than even the commencement of some new Houses of Parliament would have made them, for Berne was to have led the way with the erection of a large public building devoted entirely to the administrative offices of the various trades unions and the halls necessary for the different meetings organised by these societies. The erection of such a democratic institution with the moneys of a public purse would, indeed, have been an event, especially as we hear that this Utopian improvement on the public-house and the rented assembly-room was to cost the ratepayers about 750,000 francs, or 30,000*l.* Though barred for the coming year, it is, however, very probable that this scheme will soon be again brought forward, especially if the proposed General Assembly Hall and Art Galleries are not soon taken in hand. It may hence be interesting to hear that the proposed new home of the trade unions was to have one meeting hall for an audience of fifteen hundred, and four others with room for audiences of three hundred each. There was to be a Free Library and Reading-room in the block, and last, but not least, besides the many offices, a "labour bureau" and a soup kitchen and extensive dining-halls.

A CORRESPONDENT writes to complain of the great inconvenience to which persons seeking for houses in London are put by the unbusiness-like ways of house-agents. One complaint is that a would-be tenant is constantly supplied with orders to view houses which are already let, by which time and money are wasted. This muddle arises, to some extent, from the fact that it is customary in London to place houses in the hands of several agents, and the house-owner frequently does not take the trouble to communicate with the unsuccessful agents when a house is let or sold. But there can be no doubt that house-agents should be more careful in the supervision of their lists. Another grievance is that the size of houses and the conditions of a tenancy are not accurately stated by the agent. Thus a tenant asks for a list of houses containing, say, eight bedrooms; perhaps the very first house he visits is found to contain only six of the required rooms. The fact that houses are, in London, placed in the hands of too many agents is really at the bottom of it all. If one agent only has a house to dispose of he will attend carefully to the business; if he knows that it is in the hands of half-a-dozen other firms he becomes little more than an advertising medium. If the leading firms would make it a condition of their business that when a house is placed in the hands of any one of them it is not to be put on the books of another firm, it would, in the long run, be to the advantage of all concerned.

HAVING widened their Cannon-street bridge in 1892, and that at Charing Cross four years previously, the South Eastern Railway Company have nearly completed a corresponding enlargement—rendered necessary by increasing traffic—of their station at London Bridge. The new works have been carried out under the superintendence of the Company's Engineer, Mr. Brady. They comprise the addition of two lines (making seven in all), widening and lengthening of the platforms, building of new waiting-rooms, roofs and sheds, and rebuilding of the front booking-offices. Space for the extension was taken along Tooley-street, southwards of which the station had been built to serve their traffic when extended to cross the Thames. The inconvenient inclines for passengers and luggage to and from the platforms are replaced by an iron bridge and a passage below. For some time the original terminus, since converted for purposes of the goods traffic, was used in common by the South-Eastern and London, Brighton and South Coast Companies. The line to Red Hill and Tunbridge was opened in May, 1842, and carried on to Dover two years later; the Greenwich line, the first that was made to run out of London, had already been constructed by Colonel Landmann, engineer. In his lecture upon "Some Celebrated Timber Roofs," delivered at Carpenters' Hall on April 1, 1885,* Professor Roger Smith pointed out faults in the design of the queen-post roof, 92-ft. span, of that terminus; indicating the defects, he says:—

> "There is no reason to be surprised at the failure of this roof; and yet its appearance is striking, and gives the idea of its being both elegantly, skilfully, and boldly designed. Boldness has, however, been pushed too far."

The Greenwich railway is remarkable for its viaduct of nearly 900 brick arches; at the outset they laid the rails upon spaced blocks of stone, but soon replaced these with timber sleepers. The alterations effected by the Great Eastern Company in Bishopsgate-Without during two years past are upon a much larger scale, and in the end will give them a terminus at Liverpool-street covering fifteen acres. Here for the new site they have excavated 130,000 cubic yards; they have built three iron bridges, laid eight new lines with platforms, and erected a new parcels' office, four stories high. A leading feature will be the "circulating area," at end of the platforms, measuring 90 ft. by 210 ft., and roofed in one span. The number of lines is raised to twenty: the combined fronts of the old and new stations extend over 500 ft. We understand that the works are planned and designed by Mr. J. Wilson, the Company's Engineer-in-Chief. By a coincidence, each of the two stations covers the first site of an ancient hospital, this being on the site of Bethlehem, founded in 1246 by Simon Fitz-Mary for a priory, and given by Henry VIII. to the City of London, the other supplants the gardens and nearly all the buildings of St. Thomas's, originally an hospitium (1209), dedicated to à Becket, belonging to the prior and canons of St. Mary Overye. In the Ashburnham MSS., British Museum, is a charter of 1214, whereby John and Grace Chaloner quit-claim a messuage in Southwark to Amicius [warden of an adjacent hospital founded by the Bermondsey monks] for the new [united] hospital of St. Thomas the Martyr for ever.†

THE unusual space occupied by special subjects this week in our columns has left us no opportunity for any detailed article on the two interesting loan exhibitions at Burlington House and the New Gallery, and we must defer special notice of them till next week. We may say for the present that the Burlington House "Old Masters" exhibition continues to keep up its interest in the most remarkable manner, though we observe that, as was to be expected, some of the works which were exhibited nearly a quarter of a century ago to a younger generation are beginning to re-appear. We hope this resurrection of the treasures of past exhibitions will be carried much further; there were many splendid works in the earlier loan exhibitions which have never been seen by a large portion of the public who now visit the galleries, and which have very likely changed owners in the meantime. The special features of the exhibition are the interesting collection of the paintings and designs of Stothard, in the Water-Colour Room, and a selection of the works of the late Mr. Pettie in another room; also a series of drawings by Blake for his finest work, the illustrations to the Book of Job. At the New Gallery the majority of the paintings are of more interest historically than artistically, but, on the other hand there is a remarkable collection

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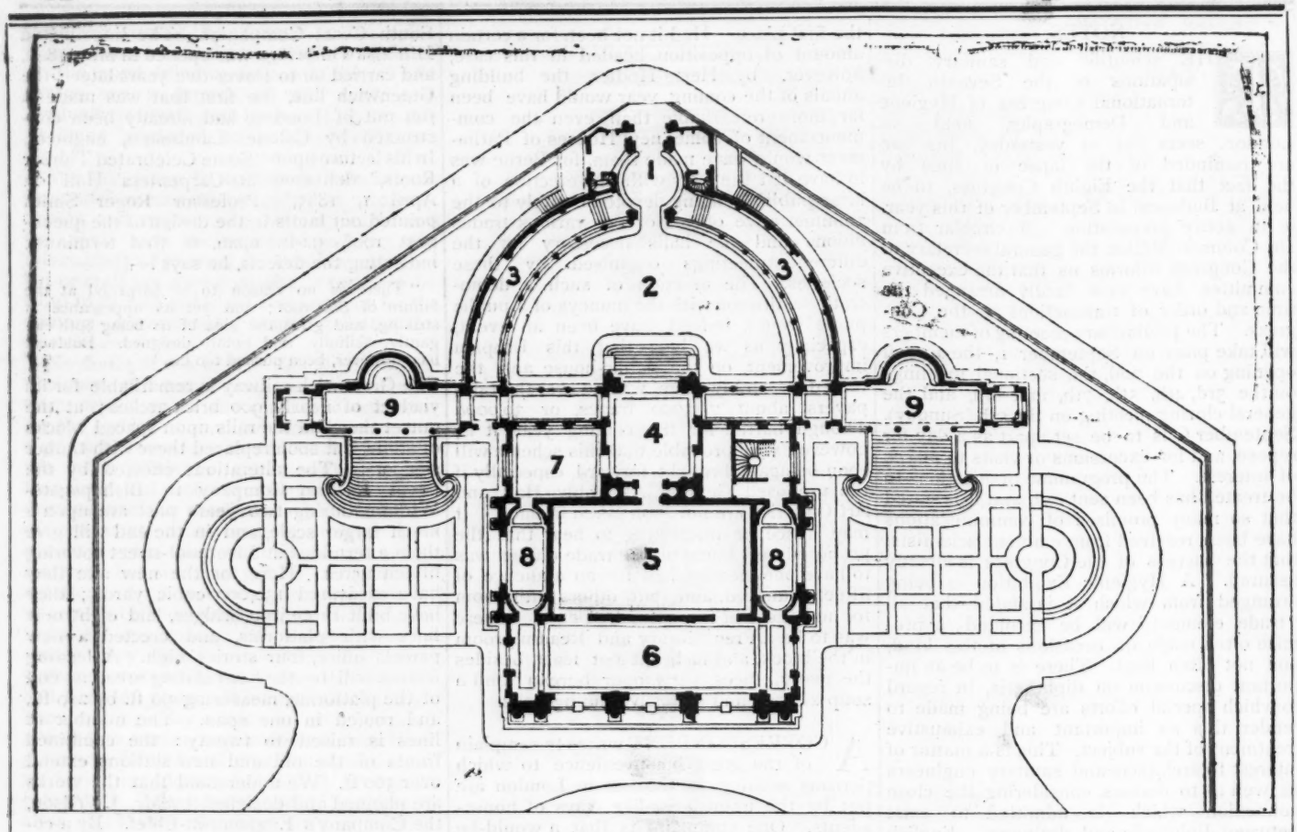
* For report see the *Builder* of April 4, 1885.

† The late Dr. Rendle mentions many inhabitants of the Close, such as the Hoones, Williamsons, and Nicolsons, natives of Holland, and glass painters. Galyon Hoone and James Nicolson, with Richard Bownde and Thomas Reve, contracted to make eighteen windows for King's College Chapel, Cambridge, and to supply designs for four to Francis Williamson and Symon Symondes (1526).



Plan of the Musée Galliéra, Paris.

1. Principal Entrance.
2. Interior Court.
3. Galleries surrounding Court.
4. Vestibule of Museum.
5. Gallery for Paintings, Tapestries, and Objects of [Industrial Art.
6. Principal Sculpture Gallery.
7. Library.
8. Small Side Galleries for the exhibition of Objects of Art.
9. Exterior Porticoes intended to receive Sculpture.

of Italian decorative work in the shape of bronzes, ivories, gold-work, &c., which is well worth attention.

THE "furniture middleman" appears to be preparing a grand display at the Agricultural Hall, for April, of "Art Furniture and Decoration," concerning which we are told in the circular that "it will be a *bonâ-fide* trade show," and "the general public will not be admitted;" admission is to be only by tickets, which will be distributed to the right people. The reason of this last restriction we do not understand. Is it to avoid disagreeable criticism, or to guard against the purloining of trade secrets? Another thing that we do not see is where the "art" comes in. In the Arts and Crafts Exhibitions we have seen collections of articles exhibited (for the most part) in the names of the persons who designed and made them. The "Arts and Crafts" is somewhat circumscribed in its sympathies; it is possible that there may be some work in other styles, and which merits the name of art, found in the promised exhibition at the Agricultural Hall. But nothing is said about the designers—the real craftsmen. It is, apparently, to be an exhibition for the honour, not of those who design and make furniture but only of those who sell it.

PARTNERSHIP AND CHANGE OF ADDRESS.—Mr. Jeremiah Head, consulting engineer in civil, mechanical, and metallurgical engineering, has removed his headquarters from Middlesbrough to 47, Victoria-street, Westminster, and has taken into partnership his son, Mr. Arnold Potter Head, the firm being now Jeremiah Head & Son.

SILICATED GRANITE CONCRETE FLAGS.—Messrs. J. Van Praagh & Co., of London, have been appointed sole agents for London and adjoining district for the above-named and other materials manufactured by the Glass, Granite, and Patent Concrete Company. These consist, we believe, of a mixture of cement with a crush granite, or rather syenitic hornblende, for it is not a true granite, though a very good material for the purpose.

PATENTS.—The applications for the grant of British patents for inventions have been more numerous in the past year than in any previous year, the number being 25,102.

Illustrations.

THE MUSÉE GALLIÉRA, PARIS.

THIS new museum, of which some account has been already given in our report of the Proceedings of the Congress of French Architects of 1892, is now nearly completed. The interior fittings will shortly be finished, and the Municipality of Paris will then be able to instal in the Museum the purchases of works of art which it makes year by year.

The monument has been built at the expense of the Duchesse de Galliéra, on a site which she has presented to the Municipality, and is from the plans and designs of M. Léon Ginain, architect and member of the Institute of France. The interior decoration has been executed by M. Compan, after the sketches of the architect, and the sculptural portion of the work has been entrusted to MM. Chapu, Cavelier, and Jules Thomas, who have executed the three statues in the bays of the principal façade, representing Painting, Architecture, and Sculpture.* The bust of the generous donor is to be placed in a space provided for it in the entrance vestibule.

The museum will not offer very large wall-space for paintings, which may be considered from one point of view a wholesome circumstance, as it will necessitate a cautious and severe judgment in the purchase of pictures. There is, however, room for a great deal of sculpture in the large gallery looking on the square, and in the two porticoes. The two exedræ in the gardens on each site will also be available as portions for sculpture.

The plan has unfortunately been sent to us from Paris without a scale, but the reader may estimate the scale approximately from the fact that the gallery No. 5 is just 20 mètres, or 65·6 ft. in length.

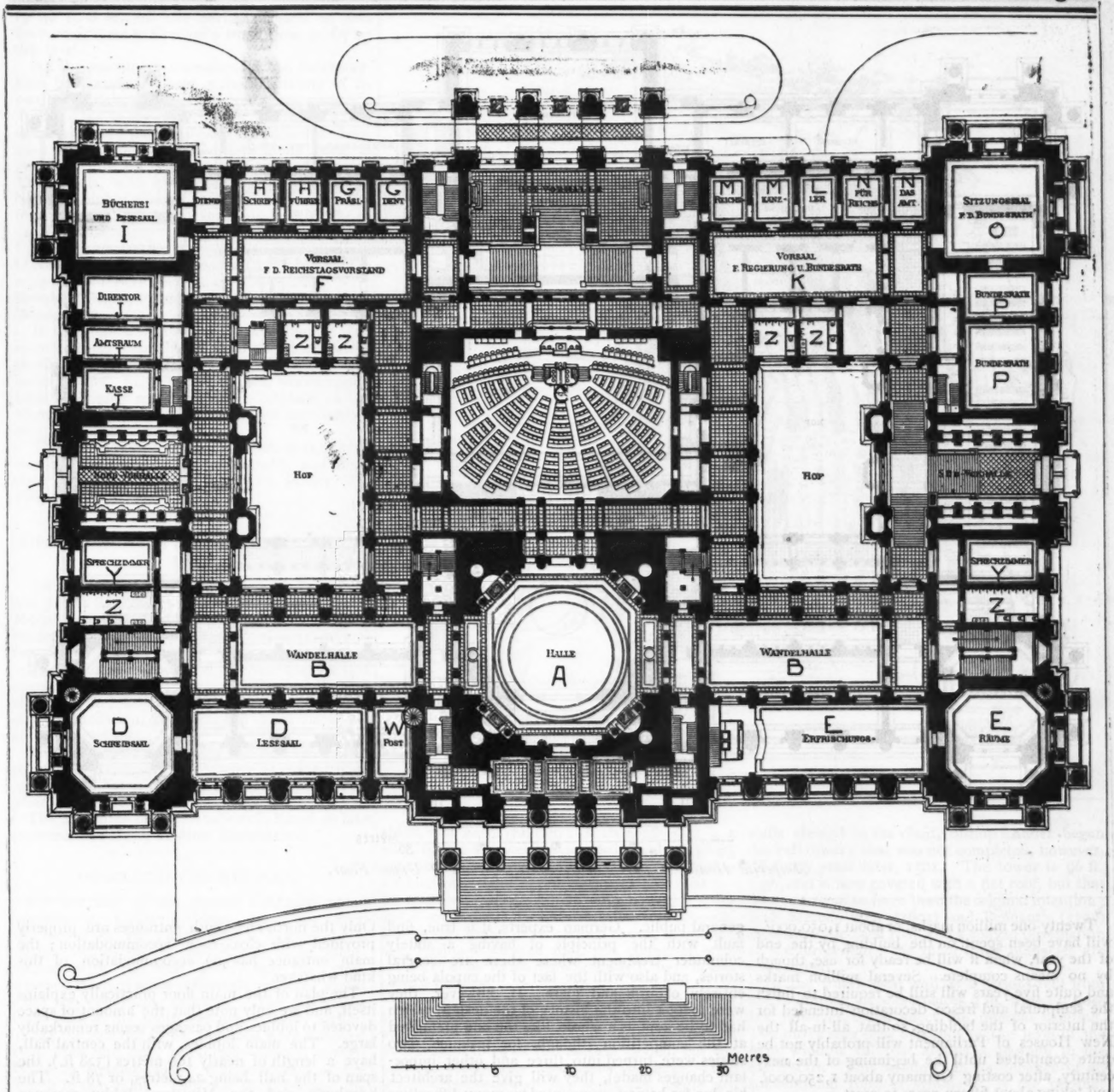
Both in plan and design this building seems a model of what a museum of art should be—an artistic shrine for works of art, not a mere roof to cover them, and it affords a peculiarly happy example of the application of classical forms to modern architecture.

* We had hoped to have given large scale illustrations of these figures, as an appropriate accompaniment to the view of the building, and they were actually photographed with that object; but unfortunately the faces had already become so stained and streaked by the effect of heavy rain laden with the impurities of city air, that the result was too melancholy to contemplate.

ON NO MAN'S LAND.

SOME of the towns and villages upon the banks of the Main have their Rathhauses erected upon most singular sites. That of Dettelbach, which has been previously illustrated in the *Builder*, stands upon an arch spanning a stream, and has the principal street of the town passing beneath it at right-angles to the river. The Rathhaus at Marktbreit stands upon a bridge thrown across the city moat, and has a street passing beneath it. The Rathhaus at Bamberg has a still more remarkable site, as it is built upon the bed of the river, and tradition asserts that this singular site was selected because the Town Council, being on bad terms with the Prince Bishop, who held one bank of the river, and the nobleman who possessed the other bank, could obtain no land whereon to build the Rathhaus, so they erected it upon the river's bed, that being regarded as "*no man's land.*" Whether the tradition is true or not we have been unable to ascertain, but the singularity of the site selected has not been explained by any other theory.

Unfortunately the Bamberg Rathhaus was entirely rebuilt at the close of the seventeenth century, the present building is consequently in the Late Renaissance style, covered externally with somewhat rank paintings in distemper. The general effect is not unpicturesque, but there is nothing about it to account for its strange situation. In the old view of Bamberg, given in the *Nuremberg Chronicle*, a building that seems intended for the Rathhaus, has projecting parapets and corbelled-out turrets at the angles; in other words, it is a fortified structure, which is somewhat strange, because the town itself was never either fortified or walled round, an omission which is accounted for, it is said, by the fact that Bamberg was regarded as a sacred city from the great relic of the true cross deposited in the Cathedral by the Emperor and Empress, St. Henry and St. Cunigunda, who are buried in the Cathedral; and now comes a question—Is it not possible (supposing this fortified building shown in the *Nuremberg Chronicle* to have been the Rathhaus) that it may have been erected on the bed of the river for the sake of its protection? because, although possibly the warlike barons of the Middle Ages may have scrupled at robbing a church protected by so sacred a Palladium, yet they may not have considered that this protection extended to the treasure-chest of the town council. However, although we venture to suggest this



The Imperial Parliament House, Berlin.—Plan of Ground Floor.

A. Central Hall.
B. Main Lobbies.
C. Council Chamber (Reichstag).
D. Writing and Reading Rooms.
E. Refreshment Rooms.
F. Speaker's Lobby.
G. Speaker's Study.
H. Secretary's Office.
I. Speaker's Library.
J. Administrative Offices.
K. Ministerial Lobby.
L. Ante-room.
M. Chancellor's Rooms.
N. Offices.
O. Council Chamber (Bundesrath).
P. Committee Room (Bundesrath).
Passages and Lobbies.
W. Post Office.
X. Servants' Room.
Y. Private Room.
Z. Lavatories.

explanation, we must acknowledge that it does not meet one objection, and that is, it completely fails to account for the almost equally singular site in such towns as Dettelbach and Marktbreit, which were fortified, and could not claim immunity from siege and sacking on account of any unusual sacredness.

Our illustration represents a town-hall erected on a similar site to that at Bamberg. It is, however, purely an imaginary design, and is not founded upon any existing building, or any structure of former times. The site being the centre of the river, the general outline has been treated in such a way as to bear some resemblance to a ship with its lofty poop rearing itself out of the water. As at Bamberg, the approach is from the centre of the bridge, and the building has an open loggia round the upper story, a feature very common in the Mediæval Rathhauses of Germany, good examples of which are to be seen at Brunswick and Hildesheim. H. W. B.

VIEW AND PLAN OF WESTMINSTER ABBEY.

THE view of Westminster Abbey, specially drawn for this issue of the *Builder* by Mr. John Begg, is taken from the north-east, so as to get the most interesting and picturesque portion of the exterior architecture into the foreground. To get this view a little liberty has been taken with the position of St. Margaret's Church, which, in its actual position closer up to the Abbey, would have shut out the north transept from this point of view, and its angle is therefore shown as a little further from the great church than is actually the case. As the object is to show the Abbey rather than its surroundings, this was the only way to meet the case.

The plan is drawn by Mr. R. W. Paul on the basis of a plan made by Mr. R. Phené Spiers, which he has kindly lent us for the purpose, and from which this one has been prepared, with reference at the same time to the actual building. In the shadings showing the different dates we have followed a coloured plan prepared by Mr. J. T. Micklethwaite, who has made the history of the Abbey buildings a special study.

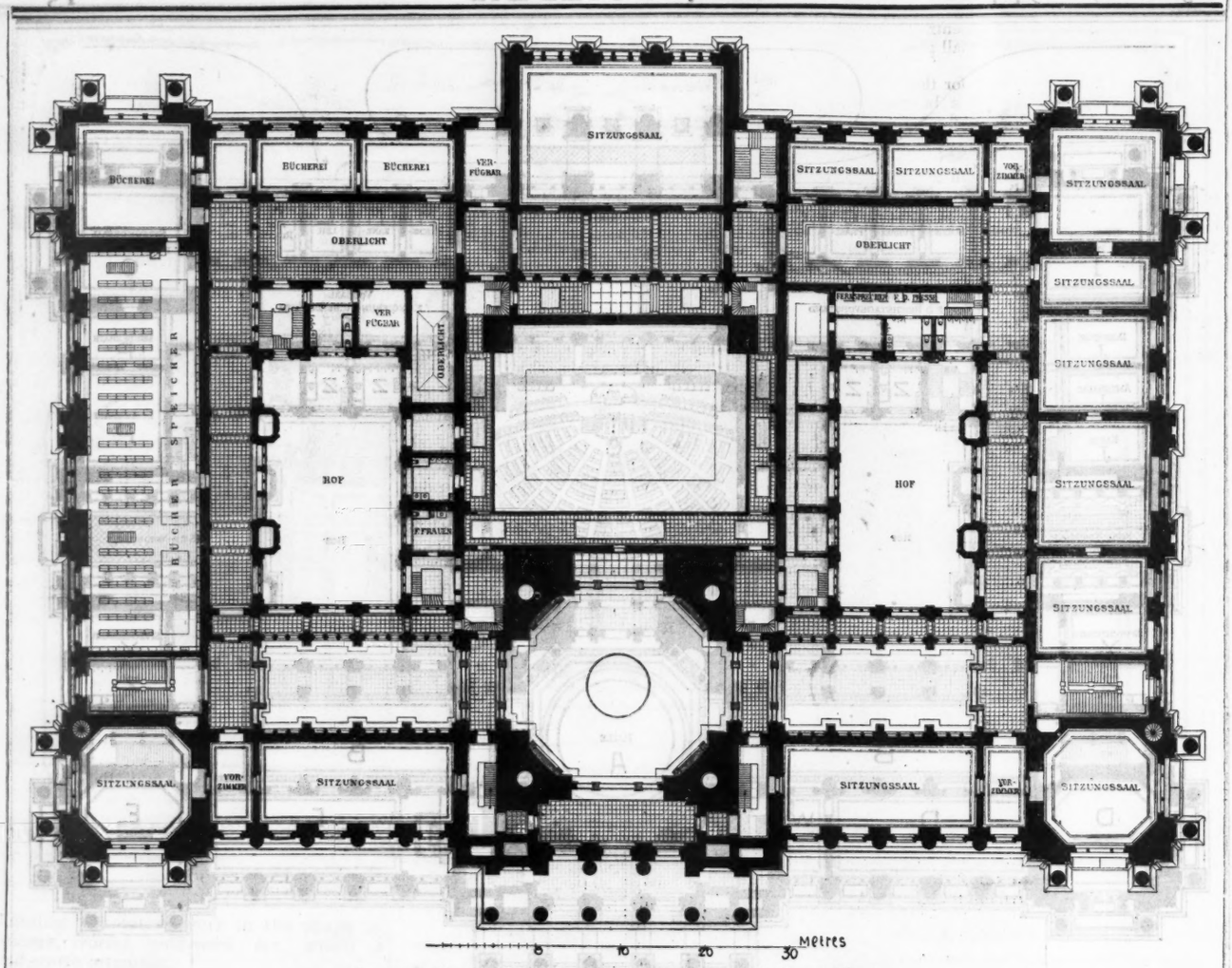
For further remarks on the subject of this great building the reader is referred to the first article in this issue.*

* The view and plan of Westminster Abbey forms No. 1 in a series of illustrations of The Ancient Abbeys of Great Britain, which will be resumed and continued month by month as soon as the publication of the illustrations of the "Ancient Cathedrals of Ireland" is completed.

IMPERIAL HOUSES OF PARLIAMENT, BERLIN.

THE new building for the Imperial Houses of Parliament at Berlin is the outcome of two competitions, of which the first in 1872 (won by Herr Bohnstedt) numbered one hundred and two designs; and the second, of 1882, no less than one hundred and ninety-four. The latter competition was remarkable for its excellent management and the amount of the premiums, including two of 750*l.* each, three of 500*l.*, five of 150*l.*, and ten minor ones. The two first premiums were given to Herr Paul Wallot, of Frankfort, and Professor Thiersch, of Munich, respectively, and the former architect (who has since been made an "Imperial Crown Surveyor") eventually received instructions to revise his plans and carry out the building.

The ceremony of laying the foundation-stone of the New Houses of Parliament in June, 1884, was the occasion of one of the most imposing spectacles the German capital has seen. Since then the works have been progressing at various degrees of speed, greatly hampered at times by the frequent alterations proposed by the Special Committee appointed to watch over the building, and also sometimes by the impossibility of rapidly obtaining the large quantities of materials required.



Imperial Houses of Parliament, Berlin.—Plan of Upper Floor.

Twenty-one million marks, or about 1,050,000*l.*, will have been spent on the building by the end of the year, when it will be ready for use, though by no means complete. Several million marks and quite five years will still be required to finish the sculptural and fresco decoration intended for the interior of the building, so that all-in-all the New Houses of Parliament will probably not be quite completed until the beginning of the next century, after costing Germany about 1,250,000*l.* and taking about fifteen years to erect.

The site of the new "Reichstaghaus," as it is called, is on the Königsplatz, a fine square, flanked by the Thiergarten on the one side and the river Spree on the other. The building is open on all sides. Its main front to the Königsplatz, looking due east, faces the Column of Victory, so that what with the Headquarters of the General Staff, and the historical Brandenburg Gate, close by, the associations of the site, and its own essentially military and heraldic decoration, the *ensemble* strikes the visitor as being rather decisively warlike.

The photographs we reproduce are taken from the model of the building which was sent to the Chicago Exhibition. From this reproduction, as well as from the detail elevation of the central portion of the east front, which is also given, some opinion can be formed of the appearance of the Reichstag's new home, and it would here be well to point out that throughout the course of erection the architect has been able to decide on his detail with the aid of plaster models to an extent quite unknown in this country. Besides the models of the complete building in scales varying from one-eighth of an inch to a foot, to a quarter of an inch and half an inch, scale, practically every part of the building has been modelled in one-tenth and one-fifth full size, and nearly every individual detail in full size. These models were made by expert architectural sculptors of the first order, who were aided in the more artistic work by such artists of standing as Professor Lessing and a number of junior sculptors of repute. The façades are essentially typical as examples of the feeling of the modern German school and, as such, though not as successful as the courtyard façades and the interior, certainly please the German general public. German experts, it is true, find fault with the principle of having a stately columnier treatment where there are several stories, and also with the fact of the cupola being entirely of iron and glass. If, however, they were to look into the history of the design, which had to be kept as a whole like the one premiated at the competition (though, for instance, two stories were turned into three and other important changes made), they will give the architect his due for having surmounted his many difficulties with unusual skill. The older German architects consider the sculptural decoration on the façades essentially coarse and too redundant, but both these defects are again typical ones of the school to which Herr Wallot belongs, or may even be said to have created, and are quite in accordance with the characteristics of the city in which the building stands and the people that will use it.

Referring to the plan, it is only fair to at once explain that it was originally intended to have the most important rooms on a much higher level than has actually been taken; that the position of the large Council Chamber had to be several times changed, and with it the position of the long *salles des pas perdues*, or lobbies. Further, among the many difficulties which beset Herr Wallot we may mention that the committee actually made the position of the cupola a point for discussion when the building was in an advanced stage, and that their decision not to let it cover the central hall, as at the time intended, but the Council Chamber, as first suggested by the architect in his competition drawings, eventually led to some of the irrationalities we see when comparing the plans and elevations.

The main entrance to the building from the Königsplatz is approached by an incline and a flight of steps which lead directly on to the main floor. The entrances from the back and sides are, on the other hand, on the level of the street, and the main floor is here reached by flights of stairs off the respective vestibules. The entrance on the north and south sides will probably play the rôle of our St. Stephen's entrance to the House of Commons, whilst the entrance from the rear is reserved for the Emperor, the Upper House (Bundesrath), the Ministers, and the Speaker. Only the north and south entrances are properly provided with cloak-room accommodation; the main entrance has no accommodation of this kind whatever.

The plan of the main floor practically explains itself, and we only note that the amount of space devoted to lobbies and passages seems remarkably large. The main lobbies, with the central hall, have a length of nearly 100 mètres (328 ft.), the span of the hall being 24 mètres, or 78 ft. The Speaker's and the Ministers' lobby measure 95 ft. by 29 ft. 6 in. respectively, and the vestibule at the rear 78 ft. by 52 ft.

The great Council Chamber, which is lighted from above, measures 95 ft. by 69 ft.; the small Council Chamber, for the "Bundesrath," 42 ft. 7 in. by 42 ft. 7 in. The reading-rooms and refreshment-rooms, off the main lobbies, are exceedingly roomy, whilst lavatory accommodation is somewhat limited. The plan of this floor will, it is thought at Berlin, answer its purpose well, though we can scarcely understand the absence of comfort for the individual Member of Parliament, and doubt if many parts of it would be sufficiently lighted.

Passing an entresol which faces part of the rear and sides only, and contains the galleries to the large Council Chamber and a great deal of press, office, and storage accommodation, the second main floor is reached. This floor is practically entirely devoted to committee-rooms, of which there are twelve, with dimensions ranging from 82 ft. by 55 ft. 9 in. and 15 ft. 6 in. by 32 ft. 9 in. for the largest, to 39 ft. 4 in. by 23 ft. for the smallest. The north side, however, contains a spacious library, measuring about 164 ft. by 78 ft., which is to be used for reference purposes, and in connexion with it there is a librarian's office, work-room, etc.

The ground-floor, if it can be so called, is essentially for the administrative part of the building, though there are also two committee-rooms on this level. The official shorthand writers, the usher's offices, the printing-press, the kitchens, the police, fire-brigade, and post-offices have been found room for, and there is also a spacious strong-room. The entrance to the public galleries also has its own lobby, measuring 92 ft.

by 42 ft. 8 in., off the north entrance on this floor, and there is likewise a small press lobby on this level.

All the machinery necessary for the Reichstaghaus has fortunately been given a building of its own on a site a couple of hundred yards away.

Returning to the elevations of the building, we would only add that a Silesian sandstone has been used for the most part, the plinth alone being of granite, whilst the sculpture is of a finer freestone. The cupola, with its copper and glass surfaces, has been highly gilded; the windows towards the front are of plate-glass. It would lead too far to describe the many statues and groups on the fronts, which are for the most part symbolical or historical, but we may mention that among the sculptors of repute engaged on the building were Reinhold Begas, Professor Schaper, Lessing, and Wiedemann.

In accordance with the German custom we may mention also that Herr Wallot's chief architectural assistants were Messrs. Fischer, Halmhuder, Pfann, Rieth, and Schmalz, whose names have constantly recurred in our columns as the winners of some of the most important German competitions of the last decade.

The system of heating and ventilation employed was described at considerable length, and illustrated by plans, in the *Builder* for January 17, 1885.

DESIGN FOR A PROVINCIAL TOWN HALL.

THIS is the design which gained for its author, Mr. James S. Stewart, the Royal Academy Gold Medal for architecture for 1893, and the Travelling Studentship. We give the principal elevation and two plans.

The conditions issued by the Academy for this competition gave no information beyond the size of the site and the drawings required; the amount of accommodation, &c., being left to the discretion of the competitors.

The author of this design has endeavoured to arrange the various departments as distinctly as possible, so that any one of them could be shut off when not in use.

The treatment of the elevations is based on late seventeenth-century English Renaissance.

DUNKELD CATHEDRAL.

ON the site of the present Cathedral stood formerly a Culdee Abbey, but not even the record of its dimensions is preserved; a portion indeed of its wall is said to be incorporated with the east gable, but the mere presence there of some differently coloured stones is not very convincing evidence. The settlement dated back to the ninth century, possibly earlier. In 844 the remains of St. Columba were removed from Iona and here reinterred—though carried finally to Ireland—hence the dedication of the church to that saint. Dunkeld then became the seat of the Scottish Church primacy, and continued to be so till the transference of the dignity to St. Andrews. In 1127 the rule of the Keledei was superseded by the territorial episcopacy inaugurated by David I. Many bishops there had been before that time, but no special district was assigned to each; now the country was divided into dioceses, and to Dunkeld, Gregory, the last abbot of the old order, was installed as Bishop, retaining at the same time his original dignity. Some of his predecessors had held a like plurality of offices; the very first Abbot of Dun-caillen was also Bishop of Pictland and had precedence of all others in that district, while another instance of the occasional combination of offices occurred in the person of Ethelred, younger son of Malcolm III., at once Abbot of Dunkeld and Earl of Fife. That occured towards the close of the eleventh century, when the Abbey became an appanage of the Crown, illustrating the secularising process then general so far as affected the heads of the great religious houses throughout the land, a tendency successfully reformed by David. There was also Irish precedent for such combination of office as a king being at the same time bishop, and king and abbot.

The Cathedral Church of St. Columba now consists of a long choir in four bays, without aisles, and never vaulted: on its north side is a lofty, square Chapter House, vaulted, above which is a charter-room. The nave is on the same level as the choir and is of seven bays with side aisles—the south one alone vaulted—and having a north and a south door, the latter opening into a porch. North-west of the nave is a bell tower, its ground floor having a vaulted roof, and connected with the north aisle by an open archway; there is also a small postern.

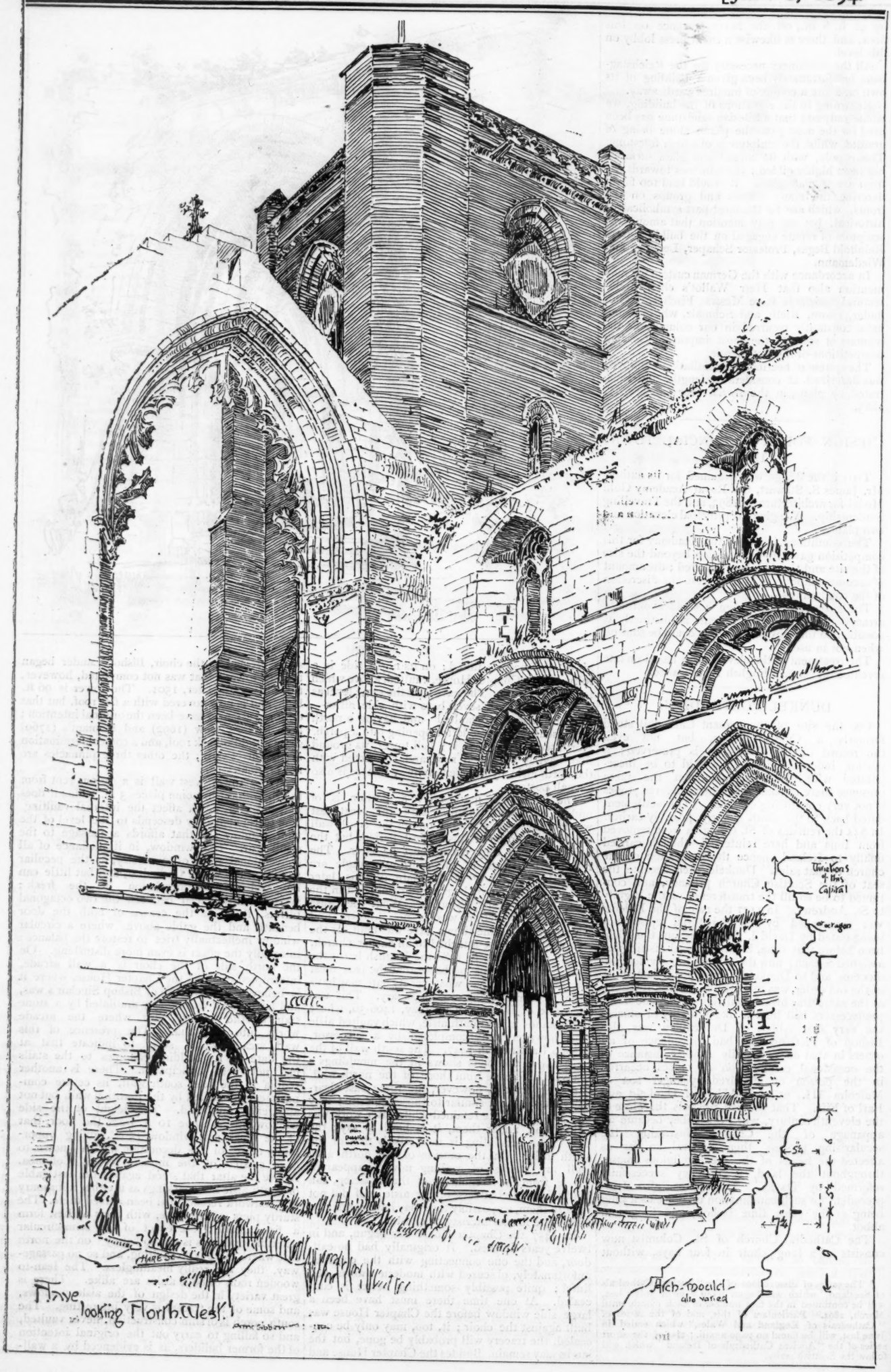
West Doorway

The choir was first built; a portion is of middle thirteenth-century date; the great east window and the eastmost one in the south wall would seem to be of this earliest period, but the walls in which they occur must be later. The reduced buttresses of the south-east angle are noticeable; 1318-37 is the date of this later portion of the choir, begun and completed in the episcopacy of Bishop Sinclair. What the cause of the reconstruction was is not known, and whether at the same time a nave was built, or the new choir was just attached to an earlier church, is also uncertain. In 1380 the English burnt the Cathedral; it seems probable that the part most affected was the nave, whatever its date may have been, so a rebuilding was necessary. This was the work of Bishop de Cairney, 1406-36, whose tomb stands in the south aisle, which vaulted aisle was, however, only completed by a successor, Bishop Raulston, in 1447. The south wall of the nave above the piers shows in the mouldings a marked difference from those of the north wall. Strangely enough, however, the three east clear-story windows are similar to those opposite; why and how they were retained while later work was being built under them, it is hard to say; the date of this rebuilding is most likely that of the south aisle. On the outside of the north aisle wall are marks of walling now disappeared. These, from the irregularity of their spacing, can hardly indicate buttresses; the aisle roof did not require them, so possibly they may have connexion with some former sacristy or cloister.

In 1457 the Chapter House was begun, and in twelve years finished. It originally had no exit-door, and the one connecting with the choir is, unfortunately, obscured with modern frames and lintel; quite possibly something better is concealed. At one time there must have been a large side window before the Chapter House was built against the choir; it, too, may only be concealed, the tracery will probably be gone, but the jambs may remain. Besides the Chapter House and stalls erected in the choir, Bishop Lauder began the bell tower; that was not completed, however, till thirty years later, 1501. The tower is 96 ft. high, and is now covered with a flat roof, but that does not seem to have been the original intention; both Slezer's view (1692) and Pennant's (1769) show a saddle-back roof, and a conical termination of the turret stair; the other three pinnacles are not original.

In the tower west wall is a serious rent from top to bottom, in some places 3 in. wide; it does not, however, much affect the internal vaulting. The turret stair only descends to the level of the west window sill that affords a passage to the south stair. This window, in its defiance of all conventional rules of symmetry, is the peculiar feature of the whole Cathedral, and but little can be said in commendation of the freak; symmetrically placed between the two octagonal turrets, it is off the centre of both the door beneath and the gable above, where a circular window ineffectually tries to restore the balance; internally the effect is even more disturbing. On the north side of the choir is a wall arcade, interrupted opposite the Chapter House, where it is believed a wall tomb of Bishop Sinclair's was, and further east barbarously mutilated by a stone stair to the gallery, just where the arcade works into a sedilia. The presence of this wall arcade would seem to indicate that at the date of its building canopies to the stalls had not been anticipated. There is another sedilia in the later south wall, its centre compartment is blocked by the partition wall, but not apparently mutilated. The height of the side window sills is some 10 ft. from the floor, that of the great east window 15 ft., giving opportunity there for the decoration that is known to have existed of the miracles of St. Columba. Above the altar that stood against the east gable of south aisle are markings as if either a masonry or woodwork reredos had been affixed there. The sturdy piers of the nave, with their arches, form a fine arcade; the effect of the semi-circular triforium openings is not so happy on the north side where there is no vaulting, and so no passage-way, they are really meaningless. The lean-to wooden roofs of both aisles are alike. There is great variety in the design of the aisle windows, and some of the tracery is very interesting. The south porch is of slim construction, never vaulted, and so failing to carry out the original intention of the former builders, as is evidenced by a wall-

* The series of illustrations of the "Ancient Cathedrals of Scotland," which was begun in our issue of July 1 last, will be continued in the first number of each month, until March, 1894. Particulars of this, and of the series of "Cathedrals of England and Wales," which ended in June last, will be found on page xxxiii.; also of the short series of the "Ancient Cathedrals of Ireland" which will follow the Scottish series.


Nave looking North West.
Arch moulds - also varied

rib: the two low side doors to this porch, with square heads, are difficult to account for.

In the choir is a fine recumbent figure in armour; it is the effigy of a grandson of Robert Bruce, the Earl of Buchan and Badenoch—more commonly called the Wolf of Badenoch, the destroyer of Elgin Cathedral—and rests on a sarcophagus, on the sides and ends of which are compartments occupied by knights under delicately carved canopies not unlike those on Bishop de Cairney's tomb. The original position of this monument was in the middle of the choir, but it was shifted at the Reformation; beside it is the headless effigy of Bishop Sinclair, and also a fragment of what has been a large and very rich richly-carved Celtic Cross. In the Chapter House there is a seventeenth-century wall-tomb of no great merit, and a more recent Classic monument displaying the heraldic bearings of all the families connected with the House of Atholl; there is also a marble statue of the fourth Duke; underneath are burial vaults.

Among the notable ecclesiastics of Dunkeld was Bishop Scott, *c.* 1203, who, at a cost of half his revenue, dissociated Argyll from his diocese because he did not understand the language of its inhabitants—Irish; Bishop Sinclair, known as the fighting or king's bishop, after his successfully rallying a sheriff's force of 500 horsemen, that was retreating before the English who visited the Forth in 1317. The turbulence of latter times is seen in the case of Bishop Lauder, violently interrupted at the Mass by a chief and his clan, and driven to take refuge in the choir roof. Another prelate, Gavin Douglas, author and translator, had his entering into possession disputed by a rival, who entrenched himself in the building, and placed artillery on the tower, and so held out for some time. The line of Romish bishops ended with Crichton, "a man well disposed, and a good housekeeper, but in matters of his calling not very skilled." "I thank God," he is reported to have said, "I never knew either the Old or the New Testament, and yet have prospered well enough. Dean Thomas, if you leave not these fantasies, you will repent when you cannot mend it"— this to one suspected of heresy, and afterwards burnt at Edinburgh. Such sentiments cannot have been confined to one when Canon Myles, 1515, could record approvingly of another, "this venerable prelate had such acquaintance with divinity, that he himself preached the faith to his people."

In 1599 considerable damage was done; then perished the eleven altars, the rood-screen that stood under the chancel arch, the stalls, and many monuments. Thereafter, as the choir sufficed for the new form of worship, the nave was suffered to fall into disrepair, was soon unroofed, and so remains. Greater damage, structurally, was done to the choir in 1698, when the insurgent Highlanders, 4,000 strong, fresh from their success at Killiecrankie, attacked Dunkeld, then garrisoned by the regiment of Cameronians; the Cathedral became an improvised fort, and enabled the besieged to hold out successfully, but the edifice suffered severely from fire. The choir roof appears then to have been destroyed; if covered with lead that material would go first, for throughout the building wherever used for the fixing of bolts the lead has been roughly extracted for military use. The later roof erected for the Presbyterian congregation is of lower pitch than the original; within it is plaster vaulted. Besides the wall blocking the chancel arch, another is built to form a vestibule to the church at the east end of the choir. The

external appearance of the choir is much marred by the parapets and pinnacles built at the same time. In the church are two galleries; the pulpit is placed against the south wall, and opposite it is the ducal pew; this last is connected with the Chapter House, used exclusively as the private entrance thereto. The Cathedral stands in the private grounds of the Duke of Atholl, and that access is freely given to all, and interest taken in the building, money for its repairs not being spared, must be acknowledged; and yet criticism cannot be silent at the appropriation of parts of a historical and sacred building to private use. The ground-floor of the bell tower is degraded to the sordid purpose of a tool-house, and the archway to the aisle closely boarded up, thus shutting off what would prove a fine termination to the aisle vista. The north and south doors are of solid wood, freshly painted—surely superfluous in a roofless building! Passage-way might be barred by a railing, and yet permit of pleasant glimpses through. In some places quite distinctly the stone-work is being split by too-vigorous ivy; the beauty of the luxuriant vegetation would not at all suffer by pruning at these parts. The nave is really a cemetery with interments of almost monthly recurrence, but these are on the decrease, happily. The clock placed on the tower some thirty years ago is doubtless of public service, but it is unfortunate that the quite unnecessary solid dials (not shown in the view) should have their points sunk into the stone joints; this, happily, is not an irremediable vandalism.

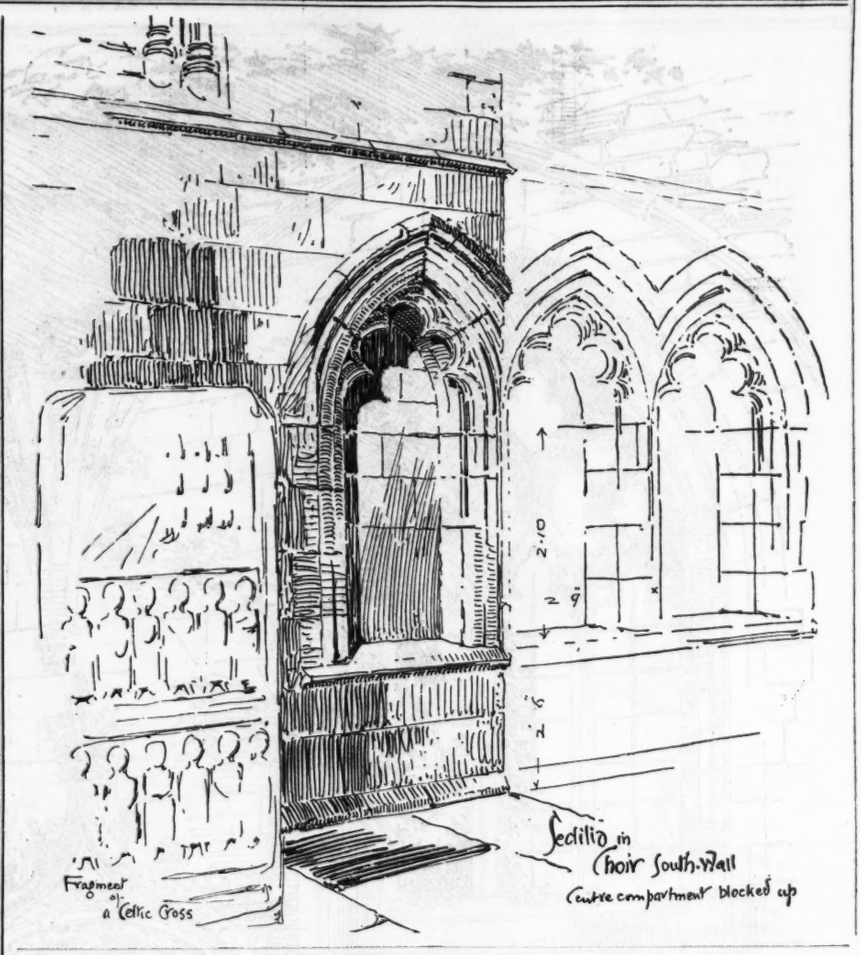
Information regarding this cathedral is not very copious; beyond the usual sources there is only Canon Myln's "Vitæ Episcoporum Dunkeldensis," written in 1515, and printed by the Bannatyr Club in 1823.

THE ANCIENT CHAPEL OF THE EPISCOPAL PALACE, CHESTER.

A SMALL door in the baptistry of Chester Cathedral, opening upon a narrow turret stair, is now the only approach to this chapel, which was formerly within the Palace built by Bishop Keene, who was consecrated 1752, and resigned in 1771 on his appointment to the see of Ely. The chapel is of much earlier date, and was undoubtedly the Abbot's Chapel; the architecture is Late Norman, the groining of stone has moulded ribs, now covered with Jacobean plaster-work. At the east and west ends are corresponding elliptical arches, apparently the original windows; the west arch has been built up, and the east now forms the arch to a small chancel more lately built over the south cloister. This chancel has a rich and very beautiful Jacobean ceiling in plaster, and some fine oak panelling, with handsome folding doors. The oak altar rails remain complete. It is lighted by two mullioned windows on the north side, and the east window, seen in the drawing. In a kind of alcove on the south side is a stained glass window, looking into the north aisle of the Cathedral. The chancel is raised one step of 7 in. above the floor of the Norman chapel, and within the altar rails the floor is 3 in. above the chancel. At the east end of the Norman chapel are openings on each side of the chancel arch. At the north-east corner is a door leading on the lead roof of the Norman crypt, which runs the whole length of the west cloister, and over which stood the great hall and the green hall of the monastery, reaching to the north wall of the chapel. On the south wall, next the Cathedral, is a fine window, seen on the right of the drawing; this lights the baptistry. The part shown has been restored, but the other side has been left in its original state, and is in good condition. This window has evidently been a door communicating with the Abbot's lodgings, which extended from this point to the Abbey gateway, and now converted into the new King's School. On this site, and in close proximity to the door referred to, stood the gallery, the great dining room, the Darby Chamber, and the stone hall of the monastery. On the north wall of the chapel is a modern window, of large size, without mullions; this is merely indicated in the drawing by the light entering upon the left side; this window was necessary to light the baptistry in the Cathedral; but it has weakened the wall, and unfortunately the groining became insecure, and it is now supported on props. Immediately under the chapel is a Norman passage; leading from the west front of the Cathedral to the cloisters there are a few other vaulted chambers under the King's School worthy of notice.

The drawing gives a fair idea of the details of the Bishop's Chapel, and the effect on entering from the dark stair is striking and very beautiful.

The part of a door, now built up, seen on the south wall, near the window on the right side of the drawing, opened upon an enclosed stair, for the private use of the Bishop, leading to the north aisle of the Cathedral.



When officiating, the Bishop was met at the bottom of this stair by the clergy and choir, and after service conducted back to the same place.

THOMAS P. IVISON.

THE WELLINGTON MONUMENT, ST. PAUL'S.

THE removal of the Wellington Monument from its old position in a chapel on the south side of the nave of St. Paul's, where it could be seen against the light, to its present position under an arch of the north aisle, where it is in a very good light, is an event worth commemorating by a fresh illustration of the monument. The title of the plate was intended to have been "The Wellington Monument: its new position," but as it was found necessary to obscure the aisle window behind in order to prevent the light interfering with the photograph, the latter cannot now be taken as representing the surroundings, but only the monument itself.

As every one knows, the design of Alfred Stevens, then an almost unknown man, was chosen on its merits in a competition, a choice which resulted in the production, after long delays, of a monument quite unequalled of its kind in this country, and worthy of the great period of Florentine art. But the illustration also serves to show how very incomplete the monument appears without the equestrian figure originally intended as the crowning feature. It is understood that Stevens's model for this figure exists, and that it will ultimately be completed and placed in position. It is to be hoped so, for, with so few fine monuments, we cannot afford to leave our finest unfinished.

SUGGESTION FOR THE REMODELLING OF THE NATIONAL GALLERY.

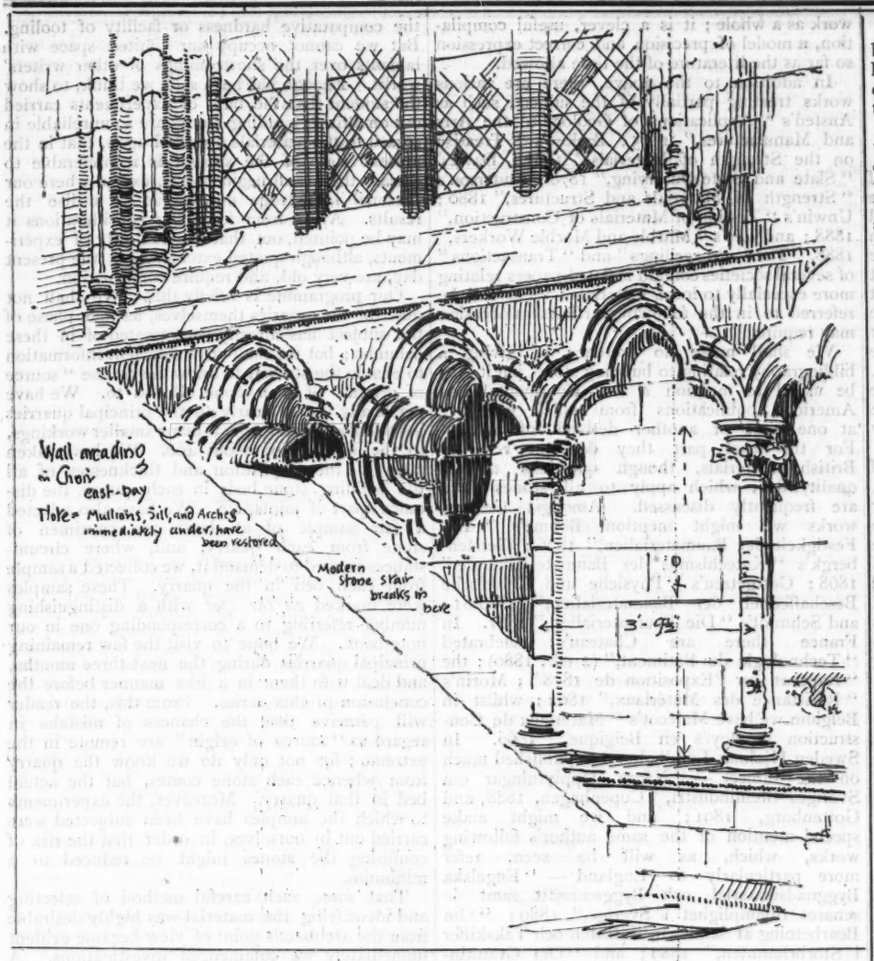
THIS must be regarded as what I have called it, a sketch of a suggestion—an "essay in the intervals of business"—and not as a fully-worked-out scheme.

It seems probable that the National Gallery must be extended sooner or later, by the acquisition of the ground to the west of its present central block, and my object is to suggest what might be done in that case to give greater architectural dignity and importance to the front, and to rearrange the interior of the front block so as to give it some degree of internal architectural effect and centralisation, without interfering much with the greater portion of the existing galleries.

It is to be hoped that no one could look at the existing plan of the front block, with its curious in-and-out irregularities of plan, and entire absence of any attempt at dignity of interior architectural effect or vista, and the muddle which has been made of the two sets of entrance staircases, without feeling that, since all chance of a completely new National Gallery worthy of the nation seems to be at an end, there ought at least to be some effort made to improve this portion of the building. And without wishing to say anything disrespectful of Wilkins, it surely cannot be denied that the sight of his small and rather mean-looking dome, having no reference to anything on the plan, and with the low glass dome which is the roof of the new staircase immediately behind it, is from an architectural point of view almost ludicrous.

As far as the plan is concerned, it will be seen that the suggestion is to clear out the whole of the interior of the existing central block containing the present ill-assorted staircases, and to form a single staircase of monumental proportions, covered by a lofty dome, and decorated with a fountain in the centre of its middle platform. The gallery round three sides of the staircase hall forms a connexion on the same level with the three principal avenues of gallery, in place of the ingenious arrangement carried out by the Office of Works, whereby, in order to get from one portion of the galleries to another, you have to go down one set of steps and ascend another. The cross walls in the rear of Wilkins's tetrastyle porticoes are retained, but with wide central doors for a vista; and a double colonnade forms a wide central avenue, with a vista from end to end of the front block of the building, across the staircase and its fountain in the centre, and closed by a small domed sculpture hall at each end.

The treatment of these ends is the most troublesome part of the matter, as everything is out of centre in this portion of the existing building. The irregularly-placed walls of this portion are taken away and the lines of the main walls of the long gallery behind brought through to the front, and contrived with two domed recesses, each of


Wall reading in Choir east-Day
Note= Mullions, Sill, and Arches immediately under, have been restored
Modern stone stair breaks in here
3'-9½"

which is on the centre axis of the suite of galleries facing it. Unfortunately (as noted on the plan) the outer wall of the wing facing St. Martin's Church is now a fixed quantity, as it forms a symmetrical incident in connexion with the east flank of the new Portrait Gallery (not shown on plan), and therefore part of the space in the rear of this wall is turned into one of the domed niches aforesaid, and the rest I have shown utilised as a service stair; but it might be made a small cabinet gallery for gems or miniatures.

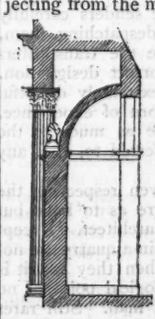
The new portion of the plan in the rear is shown as carried out symmetrically with the existing portion, with the addition of an apsidal recess for sculpture on the west side, corresponding with the position of the semi-circular portico or vestibule of the Portrait Gallery at the other end, which however is entirely disconnected from the National Gallery.

It will thus be seen that we have now a plan in which all the various portions are centralised, and which presents in its front range of galleries a decent opportunity for an interior architectural effect. It is suggested that these galleries with the colonnade should be reserved for decorative art—mosaics, bas-reliefs, &c., as a class of work having special affinity with architecture, and therefore suitably placed in the portion of the interior where architectural effect is most studied, and the paintings placed in the rear galleries, where (on the completed plan) there would be much more room for them than in the present gallery, even after deducting the front gallery for decorative work.

As to the treatment of the exterior, the suggestion is to preserve Wilkins's central portico and the two intermediate tetrastyle porticoes as they stand, and to retain the front wall between the centre and the end wings, only filling up the blank windows in the upper story and inserting into this portion of the wall a broad band of carved foliage to give a little richness to the front, with a portrait bust in a deeply-sunk medallion in the centre of each length of the carving. The actual windows below are left as they are, except for the insertion of a curved pediment head over each of them, to give a little more force and shadow to this portion of the front.

In the central portico it will be seen that a new column is added internally on each side, making a double row of columns and pilasters at each end of the portico, corresponding with the interior piers of the dome, and giving greater strength and richness of effect to the portico. The arrangement of the exterior stairs, so as to give access at the ends instead of at the front of the portico, as at present, is of course a very poor one architecturally, but the demands of the street line prevent any other arrangement; and I think it will be admitted that the widening of the steps, and the quarter-circle sweep given to them, is so far an improvement on the present steps. The suggestion for the central architectural feature may speak for itself; the idea was to raise a large and broad mass at the centre of the building, but to keep it in accordance with the grouping suggested by the plan, four angle towers and a central dome, architecturally connected with the towers as shown.

The treatment of the end wings was a puzzle; as though it was possible to secure a tolerably symmetrical arrangement internally, it was scarcely possible to do so in a satisfactory manner externally, in consequence of the exterior persistence of that eastern projection before alluded to. The only thing I could think of was to raise a perfectly plain blocking or surbase above the balustrade line, so as to disconnect the cupola from the lower details, which could not be altered and would not quite assimilate with its position. In regard to the south front of these wings, Professor Aitchison has already shown the probability that Wilkins never intended or wished to throw back the ends of his building in the weak and ineffective manner shown in the existing front, and he has suggested a columned portico projecting from the main line of building at each end.



The curved line of the roadway at the south-east angle suggested to me the idea of a semi-circular projection, harmonising with the curve of the roadway, and repeated, of course, on the west wing. The interior semi-circle gives a vista at the end of the east and west range of galleries. The section of the wall of this semicircle would be somewhat as shown in the appended sketch section, the inward curve of the semi-dome affording space for an entire detachment of the columns in their upper portion, leaving a dark shadow between them, serving to throw out the capitals and the portrait busts placed between them.

The piers of the railings in front of the buildings are represented as being finished with heads or busts, after the same manner as the curious and picturesque railing-piers in front of the Sheldonian Theatre at Oxford.

Without perhaps seriously entertaining the idea that either this or any such scheme will be carried out, either by myself or any one else, I venture to protest against the view which some people would probably be ready to support, that it is any kind of architectural sacrilege to propose to cut up or remodel the building in any such manner. There has been a kind of attempt to whitewash the National Gallery of late; and my friend Professor Aitchison, in regard to the able restoration of Wilkins's possible intentions in the design as at first drawn out by him, which was published in the *Builder* of October 24, 1891, characterises the front as one of the best things of the kind we have. It would certainly have been far better if carried out in accordance with the restoration suggested by Professor Aitchison. But though the whole composition is well balanced, and Wilkins's colonnaded porticoes are carried out with the refinement of detail arising from a perfect knowledge of the style adopted, I cannot help thinking that the old opinion as to the National Gallery façade, that it is a tame and uninteresting affair, that the dome is mean, and the turrets ridiculous, and the whole thing quite unworthy of the site, is not very far wrong; to which it may be added that the plan of the front range of galleries and the entrance is simply wretched, as a plan. I think no one will question that the plan of the interior, as proposed here, would be far superior to the plan as existing. As to the exterior treatment nothing further is claimed here except to show that something on a large scale might be done with the façade, without losing the best features of the existing one and without materially disturbing anything but the centre and the two ends of the front block of galleries. It might no doubt be done in a far superior way to this; and if so, so much the better.

H. H. STATHAM.

COMPETITIONS.

BOARD SCHOOL, BURNLEY.—Mr. Murgatroyd, architect, of Manchester, has just sent in his award respecting the competitive plans for a new board school to be built in Stoneyholme, Burnley, at an estimated cost of 10,000*l.* The first premium of 20*l.* is awarded to Mr. Quarmby, architect, Burnley, and the second (10*l.*) to Mr. Dunkerley, architect, also of Burnley. The competition was limited to local architects.

PUMP-ROOM EXTENSION, BATH.—At the meeting of the Bath Town Council on Tuesday, the discussion (adjourned on December 12 last) was resumed on the resolution of the Baths Committee:—"That provided the Council are satisfied that the omission of the name of the author of the design marked 'O' was accidental, this Committee is of opinion that such omission should not disqualify him, the same not having been detrimental to the other competitors." In accordance with notice given at the last meeting Alderman Jolly moved:—"That the resolution with respect to the plans marked 'O' passed at the meeting of the Council on December 5, 1893, be rescinded so far as it authorised that the work should be carried out." Colonel Davis seconded. In the course of a long discussion Alderman Chaffin said that if the resolution should be passed the premium should be taken from Major Davis should it transpire that he was the author of the design marked "O." They were inconsistent altogether. If they wanted to censure a man for being guilty of competing dishonourably then they should not condone that conduct by giving the premium. The amendment by Alderman Jolly was put to the vote, with the result that 26 voted for it and 19 against. It was then decided by a majority to adjourn for a week, although Alderman Jolly and others advocated resuming the debate, on the motion as to subsequent action, in an hour's time.

PROPOSED NEW RAILWAY THROUGH HECKMONDWIKE.—Mr. T. H. Tullock, A.M.Inst.C.E., Local Government Board Inspector, held an inquiry on the 21st inst. in the matter of the proposed displacement of a number of houses by the London and North-Western Railway Company in the track of their line from Heaton Lodge across the valley to Wortley, and the erection of others in lieu thereof. The company propose to pull down 126 houses, inhabited by 491 persons, belonging chiefly to the working classes, and to erect eighty six-roomed houses on the Cawley estate, in front of them

The Student's Column.

THE STRUCTURE AND PHYSICAL PROPERTIES OF BUILDING STONES.—I.

INTRODUCTION.

THE chief object of the present series of articles is to give a precise and accurate account of the structure and physical properties of building stones quarried or used in the United Kingdom. The observations are based upon our personal researches in almost every instance, and will, we think supply a want that has long been felt by architects. It may be said with perfect confidence that neither in our columns, nor elsewhere, has information of the kind about to be conveyed ever before appeared. Useful books on stone there are in plenty, to the student of languages, but none of them have approached the subject from the point of view here adopted.

In commencing, it will be well to give a brief outline of the literature relating to building stones, in order that the student may see in what manner this differs from previous productions. In the year 1839 a "Report on the Selection of Stone for Building the New Houses of Parliament," and in 1861 a "Report on the Decay of Stone" used in that edifice, made their appearance; and it may be said that these two official documents comprised practically all that was known up to their respective dates of publication concerning the building stones of this country as a whole. The Reports, however, were far from being complete, and from the hasty manner in which the bulk of the information was got together, especially for the more important document—that of 1839—they were not always accurate. The Commissioners were well aware of the shortcomings of the first Report; in order to cover the deficiency to some extent they excused themselves by saying that they were well aware that there were many other quarries in various parts of the country which they had not examined, where stone of different varieties, in some cases, perhaps not inferior "to those which have been brought under our immediate inspection," existed. Then the Commissioners tell us that "from many of such last-mentioned quarries we have received specimen blocks, and the requisite information concerning them since the completion of our tour." They did not consider it necessary to extend their inquiry to granites, porphyries, and stone of similar character. The reports, in spite of these drawbacks, however, afforded a veritable mine of information to those writers who shortly afterwards dealt with our building stones; and indeed nothing of any moment was added to them until the year 1886, when the subject was attempted to be brought up to date in these columns, and a large section dealing with granite and several other stones was introduced.

In the meantime other works had been published more or less bearing on the matter. Professor Hull had written a treatise, published in 1872, on the "Building and Ornamental Stones of Great Britain and Foreign Countries." This work is too small, and of too ambitious a character to have permitted the author to deal with any part of his subject in an adequate manner; so we find the granites of England dismissed in four pages, the oolites in twelve pages, and so on. Moreover, its tendency is too geological; the author does not seem to have recognised that geologists take but little or no interest in building stones as such, whilst if the work were intended for architects he should have known that much of the geology given could have no real significance for them, as not bearing on actual materials of construction.

In 1879 Part III of Rivington's "Notes on Building Construction" appeared. The section devoted to stone, so far as it goes, is most excellent; yet there is very little in it that is really original. The lists of stone quarries, even in the latest edition, are by no means complete, whilst some of the workings no longer exist (indeed they had ceased prior to the date of publication of the first edition); whilst some others never had any existence at all, the errors having apparently arisen from the stone exhibits of the 1851 Exhibition, or to specimens which to this day are on view in the Jermyn-street Museum, that were polished more out of curiosity than anything else. Neither are the materials described at any length in Rivington's "Notes." It does not, however, profess to be a text-book on building stones; and bearing in mind the limited space at the author's disposal we have nothing but unqualified praise to offer in regard to the work as a whole; it is a clever, useful compilation, a model of precision and correct expression so far as the literature of the time allowed.

In addition to the above, there are various works treating partially of the subject, such as Ansted's "Applications of Geology to the Arts and Manufactures," 1865; Barlow's "Treatise on the Strength of Materials," 1867; Davies' "Slate and Slate Quarrying," 1878; Anderson's "Strength of Materials and Structures," 1880; Unwin's "Testing of Materials of Construction," 1888; and Lee's "Marble and Marble Workers," 1888. The "Proceedings" and "Transactions" of several societies contain isolated papers relating more especially to local materials; these will be referred to in the following articles as occasion may require.

We shall make no pretence of giving a bibliography relating to building stone, but it may be useful to mention a few Continental and American publications from which we have at one time or another derived information. For the most part they do not refer to British materials, though questions as to quality, &c., which apply to all stones alike are frequently discussed. Amongst German works we might mention Böhme's "Die Festigkeit der Baumaterialien," 1876; Gerstenbergk's "Katechismus der Baumaterialkunde," 1868; Gottgetreu's "Physiche und Chemische Beschaffenheit der Baumaterialien," 1880-81; and Schmidt's "Die Baumaterialien," 1881. In France there are Chateau's celebrated "Technologie du Bâtiment," (2 ed., 1880); the "Rapport sur l'Exposition de 1878"; Morin's "Resistance des Matériaux," 1862; whilst in Belgium we have Malécot's "Materiaux de Construction employés en Belgique," 1866. In Sweden Hjalmar Lundbohm has published much on the subject — "Några Upplysningar om Sveriges Steinindustri," Copenhagen, 1888, and Gottenburg, 1891; and we might make special mention of the same author's following works, which, as will be seen, refer more particularly to England — "Engelska Byggnadsmaterial och Byggnadssätt samt de senares tillämplighet i Sverige," 1889; "Om Bearbetning af Sandsten, Kalksten och Takskiffer i Storbritannien," 1889; and "Om Granitindustrien i Utlandet Särskildt Storbritannien," 1889. The last three works form quite a monograph for Swedish readers, on the stone industry of this country, and being official publications of the Swedish Geological Survey, and based mainly on personal investigation, have a special value.

The United States have contributed a great deal towards the literature of building stones. There are Hall's "Report on Building Stones"; Newberry's "Report of Judges on Building and Ornamental Stones" at the International Exhibition of 1876, Washington, 1880; Smock's "Building Stone in the State of New York," 1888; "Tenth Census Report," 1884; Thurston's "Materials of Construction," 1885; Gillmore's "Notes on the Compressive Resistance of Freestones, &c.," 1888; and Merrill's "Stones for Building and Decoration," 1891. The last mentioned work is decidedly the best text-book extant on the building stones of the United States; whilst it deals in some measure also with the materials of other countries.

Now, if we had to criticise the English works above mentioned, we should say that they are chiefly based on the experience of or reliance on others than the authors themselves. In regard to those referring to experiments we have no doubt that these latter were carried out under the immediate supervision of the authors; the stones experimented upon, however—and this is the crucial point—were not collected by the authors, but were, in nine cases out of ten, sent to them, by divers persons, mostly interested pecuniarily in the results obtained. That the senders carefully selected the materials before despatching them, goes without saying; we hope the transmitters always gave each stone its correct designation, though we are in many cases extremely doubtful on that head—a scepticism born of experience. This observation applies quite as much to the Commissioners' "Report" referred to, as to any other publication.

Further, the information given respecting the stones is in all cases so meagre as to have but little value in the eyes of the architect. Except in very rare instances the beds in a quarry are not mentioned specifically, and when they are, it is mostly to emphasise some geological point of no use whatever to the practical man. Still rarer are references made to the prevalence, or otherwise, of vertical joints and sizes of blocks; we have looked in vain for particulars concerning the comparative hardness or facility of tooling. But we cannot occupy our limited space with laments over the shortcomings of other writers' works. Enough has been said, we think, to show the student that the bulk of experiments carried out on British building stones are so unreliable in regard to the materials operated upon, that in the present state of the subject is it preferable to discard them and begin afresh, except where our personal knowledge enables us to utilise the results. Apart from foregoing considerations it may be pointed out that the majority of experiments, although quoted extensively at the present day, are very old, and require confirmation.

Our programme is briefly this. We shall not describe the quarries themselves, as that phase of the subject has already been treated of in these columns; but we shall give sufficient information to enable the student to know the precise "source of origin" of each stone alluded to. We have personally visited nearly all the principal quarries in the country, and a great many smaller workings, to the number of about 400. We have taken note of the disposition and thicknesses of all the building stone beds in each quarry, the distance apart of joints, &c. We have also selected a fair sample of at least one specimen of stone from each quarry, and, where circumstances seemed to demand it, we collected a sample from each bed in the quarry. These samples were marked *on the spot* with a distinguishing number referring to a corresponding one in our note-book. We hope to visit the few remaining principal quarries during the next three months, and deal with them in a like manner before the conclusion of this series. From this, the reader will perceive that the chances of mistake in regard to "source of origin" are remote in the extreme; for not only do we know the quarry from whence each stone comes, but the actual bed in that quarry. Moreover, the experiments to which the samples have been subjected were carried out by ourselves, in order that the risk of confusing the stones might be reduced to a minimum.

That some such careful method of selecting and identifying the material was highly desirable from the architect's point of view became evident immediately we commenced investigations. A few illustrations by way of exemplification may be adduced.

In more than one case we discovered that certain firms possessing one or two quarries were in the habit of sending one kind of stone to market under various names, the names in each case referring to the materials of some rival in trade. It is right, however to mention that the spurious names adopted referred, in a few instances, to stone inferior in quality to that of the stone thus wrongly named. It was not that the owners (in these few instances) were not aware of this fact, but that the inferior stone had caught the attention of the market, whilst their own was less known. This practice is commonly resorted to where a new quarry is opened up.

Knowing that some architects largely rely on the quarry mark of a stone, believing that all stone bearing that mark comes from a certain quarry, instinct led us to make careful investigation as to the relation existing between the marks and the quarries. In some cases we saw that stone so marked, faithfully represented the facts as the architect believed them, but our inquiries in other instances led to an entirely opposite conclusion, especially when we found that the marks referred not so much to the quarry as to the gang of men working therein; where the men, from any reason whatever, removed to another quarry their mark followed them, and the stone raised in the new locality received the same mark as that from the quarry they had abandoned. We might continue quoting experience of a similar nature, but it would serve no useful purpose other than that already demonstrated.

The specimens of stone collected have been subjected in the first place to microscopic examination in a manner to be described in a future article. We have frequently advocated this method in our columns, though with few exceptions we have not put it into practical application. Small briquettes of each have been cut and experimented upon with a view to ascertain their relative powers of absorption of water, specific gravity, &c. The stones have each undergone a careful examination, both at home and in the field.

We hope to show that the stone from each quarry, and in most cases from each bed, has a distinct microscopic structure, which anyone with but a moderate care can recognise, without any special scientific training. To show the extent of this observation, and to give some idea of the

detailed manner in which we shall proceed, we may remark that in the Bath area alone we visited forty-two quarries and collected seventy-three samples of Bath stone. Each bed, so far as we have been able to examine it, has a definite micro-structure, and where the latter is not as distinctive as might be desired, the physical properties mentioned—specific gravity and absorption of water—assist in the determination. And we shall give concise particulars regarding nearly all these stones; so that if the architect pays sufficient attention he will be able to ascertain for himself whether, a certain stone having been specified, that stone or some other is sent on to the work.

The general trend of the present series, then, is a distinctly scientific one, and is primarily intended to enable students to identify building stones by learning something of their disposition, structure, and physical properties. Incidentally, the influence these latter may have in determining the durability of the several stones described, will be touched upon.

GENERAL BUILDING NEWS.

ENLARGEMENT OF HORFIELD CHURCH, GLOUCESTERSHIRE.—The additions recently completed at Horfield Church, which consist of chancel, chapel, organ-chamber, and a portion of the north and south transepts, with lantern tower over the crossing, form the principal portion of the scheme of enlargement, which has yet to be completed by the building of the remaining portions of the transepts. The lantern tower assists in lighting the centre of the building. The work has been carried out by Messrs. W. Cowlin & Son from the designs of Messrs. Henry Crisp & Oatley. The carving has been done by Messrs. Davey & Bushell, the glazing by Messrs. Joseph Bell & Sons, and the heating—which is by means of hot water—by Messrs. Crispin & Sons.

RESTORATION OF ROTHERFIELD PARISH CHURCH, SUSSEX.—The Church of St. Deny's, at Rotherfield, has just been reopened after restoration. The work, done in portions, has occupied altogether four years, but it is only during the last three months or so that divine services in the building have had to be suspended. The repair of the church has been very general, as when it was commenced the building was rapidly approaching a ruined condition. The walls and buttresses had to be underpinned, the stone tracery on the windows restored, and lead and glass put in. The stone staircase in the tower had to be renewed from top to bottom, and the roofs of the lady chapel and chancel repaired, with other work on the exterior. This formed the first portion of the restoration at a cost of 1,142*l.* 6s. 2d. The architects were Messrs. Medland & Powell, of London. Before commencing the second portion of the work the committee secured the services of Mr. Ewan Christian as architect, who expressed approval of what had been done. The second portion of the work was both exterior and interior. Among other things the nave roof has been uncovered; the roof of the chancel has been similarly treated, so as to show the waggon-headed timbers; and the whitewash and plaster have been removed from the old stone walls. While this was being done, some remains of Early English painting came to light. These have been carefully preserved. Messrs. Medland & Powell also rendered assistance in this part of the restoration.

RESTORATION OF ST. STEPHENS-IN-BRANNEL CHURCH, CORNWALL. — St. Stephen's Church, Grampound Road, Cornwall, was re-opened by the Bishop of Truro, after a thorough restoration, on the 28th ult. The church, which is of considerable architectural interest, was badly renovated some forty years ago, and much of the present work has been necessitated by the poorness of the work of that date. The cost of the restoration has been between 1,200*l.* and 1,300*l.* and has been carried out from the designs of Mr. George H. Fellowes Prynne, F.R.I.B.A., by Mr. James Julian, builder, of Truro; Mr. C. E. Perkins acting as clerk of works. The heating apparatus was supplied and fixed by Mr. De Ridder, of Liverpool.

ST. JOHN'S CHURCH, BOSCOMBE, BOURNEMOUTH.—On the 27th ult. the foundation stone was laid of St. John's Church, Boscombe, Bournemouth. The building will have a nave 107 ft. by 26 ft. 6 in.; two aisles (north and south) 107 ft. by 13 ft. 6 in. each; chancel 37 ft. by 26 ft.; chancel aisle 18 ft. 6 in. by 12 ft.; outer aisle 38 ft. by 14 ft. 8 in.; organ chamber; choir vestry and clergy vestry. Externally it will be of flint with Castle Cary bands and Bathstone dressings in the fourteenth-century style, with tracery windows, of which the west will be six-light and mullioned, and the east five-light. The roof will be of open pitch-pine, covered with pitch-pine boarding; the chancel flooring of encaustic tiles, and the remaining flooring of wood block set in concrete. The heating is to be by hot water. A fleche will surmount the nave roof, in which will be a ventilating shaft. The whole of the interior walling is to be of Bath stone, and the arches and arcades of alternate Corsham and Winsley stone. The seating accommodation, estimated for 1,021, will be of pitch pine. Lighting provision will be both by electricity and gas. The architects of the church are Messrs. J. O. Scott, F.S.A., London, and C. T. Miles, Bournemouth, and the builders are Messrs. Perkins & Sons, of Bournemouth.

THE BUILDING TRADE IN GLASGOW.—According to the Glasgow papers the building trade during the past year has been, and now is, of the very briskest description. No trade, in fact, in Glasgow or the West of Scotland has been so busy, the departments falling under stone and brick builders having been particularly well occupied. Operatives in all branches of the trade have been found scarce, and at any time a much larger number of men could have readily secured employment. This gratifying state of affairs has to some extent been due to the Underground Railway operations, in connexion with which a considerable number of workmen are regularly employed; but besides this, new jobs have been numerous and large. In the city alone a number of structures under erection have given steady employment to a considerable body of men—the Conservative Club and another building in Bothwell-street, the insurance offices in Renfield-street, warehouse in Sauchiehall-street, and the Temperance League offices in Hope-street, and large tenements of shops and houses in Argyll-street, Great Western-road, St. Rollox, and other parts of the city. It is estimated that nearly 5,000 men—including about 1,000 masons' labourers—have been employed during the year, and there is every indication that this state of affairs will continue. A number of large buildings are only half-way towards completion, and the erection of many others is just beginning or is in contemplation. Among the former class may be rated Hawkhead, Woodilee, and Gartcosh Asylums, the Deaf and Dumb Institute, West Campbell-street, a block of nineteen tenements on the South Side, and various other smaller erections; and, on the other hand, it is expected that the Art Galleries in Kelvingrove Park will be actively commenced immediately after the New Year, when a number of tenements and smaller buildings are also to be proceeded with. Wages have been, and are, at the standard of 8½d. per hour.

RESTORATION OF CHILBOLTON CHURCH, HAMPSHIRE.—On the 16th ult. the parish church of Chilbolton was reopened after restoration. The present chancel of St. Mary, Chilbolton is of the middle and the nave of the latter part of the thirteenth century, while a perpendicular window of the fifteenth century occupies the west wall. The nave has two side aisles separated from it by arcades. A tower occupies the south-west end of the south aisle. The work recently undertaken has provided for the stability of the fabric, and has also revealed such points of interest as the restorers of the early part of this century had hidden away. When the plaster ceiling was removed the old nave roof was found to be a trussed rafter roof of the same date as the fabric. It was, however, in a very decayed state. The works now completed comprise a new oak roof to the nave—in which it was possible to incorporate two old beams and one or two timbers only from the old roof—new oak roofs to aisles in place of former deal ones, new vestry and organ chamber, heating apparatus, new east window, and sundry repairs to the nave and chancel, comprising the re-building of the gable walls at either end and the strengthening of the walls throughout. The following works have still to be undertaken:—Repair and completion of the tower, chancel roof, and rood screen, new stalls, new organ, and alterations to the south porch. A Norman clearstory window, as well as some fragments of Norman stonework, were discovered during the restoration. On stripping the modern plaster off the east gable of the nave the old plaster was found intact, with the remnants of a fresco, now visible. Two angels holding a crown over a head and some parts of a vesica are still faintly visible. In re-plastering the interior walls, which are roughly built of flints, the old manner of plastering with a thin coat, which shows the texture, has been followed. The putlog holes by which the original scaffolding was erected in the thirteenth century were found to be so carefully formed in stone that they have been left visible. Portions of thirteenth, fifteenth, and seventeenth century windows were found built into the walls. The last was of wood only; but the remnants of the two former have, with other objects of interest, been collected and built into a receptacle formed for the purpose in the new vestry. The oak triptych reredos was designed by the architect, and executed by Messrs. Luscombe & Sons, of Exeter. The central portion represents the Crucifixion with the Virgin and St. John. The east window is the work of Messrs. Powell & Sons, of Whitefriars, London. The contractors for the general work were Messrs. Cornish & Gaymer, of North Walsham. The architect was Mr. W. D. Caröe, M.A., of London.

THEATRE, ROTHERHAM.—On the 1st inst. a new theatre was opened at Rotherham. The building is of pressed brick, with Horton stone dressings, pediments, &c., the style adopted being the Renaissance. The windows are of the French casement pattern with tinted glass. The principal entrances are from Nottingham-street, with two emergency exits to that street and three to Howard-street, and three others on the other side of the structure. The staircases are of solid Green Moor stone, those to balconies and dress circles terminating on a landing with crush passages to each department. The circle front is of fibrous plaster. The proscenium opening (29 ft. wide and 24 ft. high) is formed of pilasters with panelled and moulded bases, dados, and caps, relieved with plaster enrichments which return on the top with panelled soffits; and surmounting this is a plastic design representing music and art. The ceiling is dome shaped in panels with ornamental centres. A fireproof curtain and iron doors shut off the stage from the auditorium. The architect has been Mr. Joseph Platts, Rawmarsh and Rotherham; contractors, Messrs. Thornton & Son, Rotherham; gas chandeliers, Messrs. Guest & Chrimes, Rotherham; ventilation, Mr. T. W. Ward, Sheffield; decorators of circle fronts, Plastic Decoration Company, London; painter, Mr. J. Woollen, Rotherham; joiner, Mr. W. Brookes, Rotherham.

TOWN HALL, CLONTARF, DUBLIN.—On the 21st ult. the foundation stone of the new Town Hall, Clontarf, was laid. The new hall comprises a public room 65 ft. by 35 ft. At the rear there is provision for a boardroom, commissioners' office, lavatories, &c., the upper portion being devoted to rooms for the caretaker, &c. The architect is Mr. W. G. Perrott.

SANITARY AND ENGINEERING NEWS.

UTTOXETER WATERWORKS.—An act of Parliament was obtained to enable the Uttoxeter Rural Sanitary Authority to construct waterworks at Uttoxeter to be supplied with water first from Bramshall spring, with a proviso that if such spring was certified as insufficient by the Local Government Board, certain springs at Somershall might be taken compulsorily. The Local Government Board Inspector, Colonel Ducat, R.E., held an inquiry on the 12th inst., as to the sufficiency of the Bramshall spring. The clerk, Mr. Hawthorn attended. Mr. W. H. Radford, C.E., of Nottingham, the engineer of the works, gave evidence that the waterworks had been carried out at a cost of 4,800*l.* for works only. There had been 838 houses connected to the mains, producing an income of about 450*l.* a year, which was increasing daily, making the works a financial success. He always advised that the Bramshall spring would be insufficient for a population of 5,000, requiring 75,000 gals. a day, and they found they had only 37,800 gals. available from there in dry weather. There was not sufficient to give a constant supply or to fill the service reservoir, which holds 150,000 gals. The Somershall springs were three and a-half miles away, and they would give a sufficiency of water except in very extraordinary dry weather. The water would be delivered by gravitation, like the Bramshall water. The Authority had sufficient funds in hand for the extension, and wanted to carry it out at first, but, in consequence of opposition from landowners, they were unable to do so. There was no opposition.

LONDON WATER.—Professors W. Crookes and W. Odling, in a report on the results of their analyses of the 182 samples of water collected by them during November from the mains of the seven London water companies taking their supply from the Thames and Lea, say:—"Comparing the average composition of the five Thames-supplied waters during the month of November with that of the corresponding month last year, we see considerable differences. In November, 1893, the common salt, nitric acid, and hardness are practically the same as they were last year, but in the other constituents—those which may be termed the contaminating factors—the month just ended shows a diminution of more than 50 per cent., whilst the brown colour, a good rough criterion of the organic matter present, has sunk from 24·5 to 15·5. As compared with the composition of the October waters, that of November shows scarcely an appreciable difference, and for all practical purposes they may be looked upon as of the same excellent quality that has characterised the waters for several months past. Again we have to record a deficient rainfall. Whilst the mean rainfall for twenty-five years at Oxford has been 2·31 in. for the month of November, there has actually fallen 1·68 in. during the month, giving a deficiency of 0·63 in.

FOREIGN AND COLONIAL.

FRANCE.—MM. Garnier, Coquart, Pascal, Daumet Ginain, Raulin, Laloux, Normand, Loviot, and Redon, have been elected members of the committee of the Société des Artistes Français. —— The Chamber of Deputies has before it, officially, a project for consideration for a ship-canal between the west coast of France and the Mediterranean. —— At Villiers-sur-Marne a new consumptive hospital for children has been built from the plans of M. Isabey. —— The Conseil-General of the Seine, which has suppressed as unnecessary the post of Architect-in-Chief of the Department, held by M. Trélat, has created three architectural sections, one for the arrondissement of St. Denis, another for that of Sceaux, and a third specially entrusted with the construction of the gendarmerie barracks in the Department. —— The competition between architects' pupils

COMPETITION AND CONTRACTS,

COMPETITION.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Sewerage Scheme	Rotherham Corp.	150*l.* 50*l.*	Mar. 25

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*Supplying and Laying Paving	Leyton Local Board	W. Dawson	Jan. 9
Street Works, East Crawfurd-street, &c.	Greenock Bd. of Police	*Official*	do.
Cast-iron Pipes	India Office	do.	do.
Supply of Stone	Salford Corporation	do.	Jan. 10
Waterworks, Gourdon	Kincardineshire C. C.	do.	do.
School Buildings, College	Huddersfield Sch. Bd.	do.	do.
Re-building Houses, Cheap-street and High-street, Bath	W. H. Smith	C. E. Davis	do.
Two Dwelling-houses, &c, Bradworthy, Devon	A. Trible	.....	do.
Stabling, Coachhouse, &c, Ovenden, Halifax	Jonas Drake & Son	.....	do.
*Works at Workhouse	Parish of St. Mary, Islington	W. Smith	Jan. 11
Post-mortem Premises, Hillgate, Gateshead	.....	J. Bower	do.
Lodge, Royal Victoria Park, Bath	.....	C. E. Davis	do.
Portland Cement, Valetta, Malta	Director of Contracts	*Official*	do.
Retorts, &c.	Rochester Gas Co.	do.	do.
Building Works, Knockacappul, Wallstown	Mallow Union	do.	Jan. 12
Timber, &c.	Belfast Harbour Com.	do.	do.
Setts, Kerbs, Flags, &c. (Haslingden Stone)	Lancaster Corporation	Jno. Cook	do.
Diverting Hebble Brook, Shrogg's Scarr	Halifax Corporation	E. R. S. Escott	Jan. 15
Catholic Church, Midleton, co. Cork	Rev. Canon Hutch	Slevin & Clayton	Jan. 16
School Buildings, Tantarra-street	Walsall School Board	Bailey & McConnal	do.
Dwelling-house, King Edward's-avenue, Chelmsford	J. B. Pash	F. Chancellor	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*Granite Kerb	East Ham Local Board	— Savage	Jan. 16
*Fire Escape Bridges	Strand Union	W. S. Cross	do.
*Sinking Well	Mansfield Corp.	G. Hodson	do.
Cast-iron Pipes	Rochdale Waterworks Committee	*Official*	do.
Retorts, &c.	Heywood Corporation	do.	do.
*Materials for Paving Works	Greenwich Bd. of Wks.	do.	do.
*Wire Fencing, Battersea Park	LondonCountyCouncil	do.	do.
Widening Road, Red Hill, Cardiff	Glamorgan C.C.	do.	Jan. 17
Bridge, Kingsbridge	do.	do.	do.
*Removel of House Refuse, &c.	St. Pancras Vestry	do.	do.
*Making-up Roads, &c.	Fulham Vestry	J P. Norrington	do.
*Broken Granite	Romford Local Board	*Official*	Jan. 18
*Five Houses, &c. for Coast Guards, Felixstowe	Admiralty	do.	Jan. 19
Gasholder Tank	Pontypridd Loc. Bd.	T. Newbigging	Jan. 20
Drain Pipes (200 yds.)	Bonnyrigg (N.B.) Com.	R. Leithead	Jan. 22
*School of Art, Science, &c.	Dover Town Council	*Official*	do.
*Works and Materials	Wandsworth Board of Works	do.	Jan. 23
*Asylum at Whitecroft, near Newport	Isle of Wight County Council	B. S. Jacobs	do.
Sewerage Works	Cheltenham R.S.A.	*Official*	Jan. 24
Main Sewers and Outfall Works (Three Contracts)	Barton-upon-Irwell Union	C. C. Hooley	do.
School Buildings and Residence	Steventon (Hants) Sch. Board	J. Gibson	do.
*Public Library Buildings	Walthamstow L.B.	J. W. Dunford	do.
*Boundary Walls, &c.	Carisbrooke Burial Bd.	W. C. Way	Jan. 29
School Buildings, Drayton-road, North End	Portsmouth Sch. Bd.	A. H. Bone	Jan. 30
Embankments and Reservoirs	Dewsbury and Heckmondwike Waterworks Board	G. H. Hill	Jan. 31
*Sewerage Works	Keynsham R.S.A.	C. N. Lailey	Feb. 6
*New Schools	York School Board	Demain & Brierley	No date
Inn and Shop Premises, Brentwood	OldHornchurch Brewery Co.	A. T. G. Woods	do.
Corrugated Shedding, Cathays	Cardiff General Omnibus Co. Ltd.	W. J. Grylls	do.
Twenty-One Cottages	Ryhope (Durham) Coal Co.	T. Wanless	do.

Those marked with an Asterisk (*) are advertised in this number. Competitions, p. iv. *Contracts, pp.* iv., vi., viii., ix., x., xii. *and* xxxv.

for the Guardiot Prize has been decided at the École des Beaux-Arts. The first medal has been given to M. Umbersdock, pupil of M. Guadet.——A few days ago one of the towers flanking the gateway of the ancient Church des Minimes, at Nevers, fell without warning. The rest of the building, which contains a considerable number of works of art, is in a dangerous state.——The death is announced, at the age of sixty-eight, of the Abbé Chevalier, who was well known for his works on the archæology and history of the west of France, especially Touraine.——The Paris Municipality has acquired some houses next to the Hôtel Carnavalet, in order to enlarge the museum, which is insufficient for the future demands on it.——The town of Cavaillon (Vaucluse) is about to erect a monument to the memory of Castel-Blaze, dramatic author and musical critic, who wrote the libretto of the "Barber of Seville."——M. Legros, Architect to the Department of Assistance Publique, has been commissioned to prepare plans for the new hospital which will be constructed in Rue Lacordaire, Grenelle, with the legacy of Mdme. Boucicaut.——The death is announced, at the age of thirty, of M. Pierre Simon, an architect with a Government diploma, and son-in-law of M. Henri Labrouste. This young architect, who lived at Versailles, had obtained a great many successes at the École des Beaux-Arts and at the Salon, and much was hoped for him in the future.——The Chaudesaignes prize for 1893 has been awarded to M. Binet, a pupil in the Architectural Section of the École des Beaux-Arts.——M. de Baudot has been elected a member of the Committee of the Société Nationale des Artistes Français in the Section of Architecture, which is to be represented this year for the first time in the Committee.——M. Bongarçon, architect at Digne, has been appointed architect of the Department of the Basse Alpes.

GERMANY.—It has now been decided to open the International Art Exhibition at Berlin, on May 3. The exhibition buildings near the "Lehrter Bahnhof" are to be used, and the exhibition will be kept open until September 2. The special managing committee of eight has been elected, and we are pleased to see the names of two architects, Herr von Grossheim, and Herr Hoffacker among the number.——The restoration of the Cathedral of Strassburg, which has already been taken in hand, is now to be the subject of a thorough investigation on the part of the Prussian Commissioner of Works. The President of the "Akademie für Bauwesen." Herr Spieker, and Professor Persius and Durm will visit the works and report on the alterations.——Besides the competition for a new synagogue at Cologne referred to in our last number, another has been opened at Magdeburg for the same class of buildings. In this case premiums of 150*l.*, 100*l.*, and 50*l.*, will be given, and Professors Ende and Otzen will be the senior members of the jury.

SWITZERLAND.—The "Bundesrath," which met this month for their winter session, will have to discuss a number of proposals for new architectural works. The most important building under discussion will be the proposed "Bundeshaus" between the old Houses of Parliament and the new Government Offices at Berne. This block is to contain the new Council Chambers for the Swiss Parliament, and at the same time be the central feature of an imposing group of public buildings. The old Houses of Parliament are to be used as offices; this building, as well as the new Government Offices, being connected with the proposed central block. The next important building under discussion will be the proposed National Library at Berne; the third is the proposed New Record Offices, also at Berne.——Of the military buildings proposed the most important are some arsenals at Altorf, and an artillery range with barracks at Thun.——Of the exhibitions to be subsidised by the Government, we notice a National Exhibition at Geneva, and an Arts and Crafts Exhibition at Zürich.——The proposed new Central Post and Telegraph Office at Zürich, which has been the subject of so much discussion, is now to be taken in hand at once. M. Schmid-Kerez, who won the competition, is to be the architect, and has revised his plans in accordance with the new requirements of the authorities. The building will cost 1,750,000 francs, or about 70,000*l.*, and it will be completed by the end of 1895.

MISCELLANEOUS.

STATE OF LABOUR IN THE COLONIES.—We have received the following particulars from the Emigrants' Information Office:—Work in New South Wales, especially in towns, continues to be very scarce. Owing to the great depression in the coal trade, the large colliery proprietors at Newcastle in the north have terminated their present agreement with the men, with the view of arranging a lower rate for hewing coal. Strikes have occurred at one or two of the southern colleries in consequence of a reduction in wages. In South Australia the local supply of labour is quite sufficient to meet all demands. In Queensland there is no demand for any kind of labour, whether mechanical, pastoral, or agricultural, and many men have been out of work; no assistance is now being given by the colony to emigrants. In Western Australia more public works are in progress than at any previous time in the history of the colony, but some persons at Perth complain of want of work. Under the Homestead Act, which was passed last quarter, free grants of 160 acres will be made to settlers on conditions of residence and cultivation. In Tasmania no change for the better seems to have taken place; at Hobart and elsewhere many complain of inability to obtain work. In New Zealand unskilled labour seems everywhere plentiful or excessive. The building trades have been doing well, or are improving at Auckland, Nelson, Christchurch, Dunedin, and Invercargill; but the engineering and iron trades have been dull everywhere except at Invercargill. In Cape Colony the officials of the railway department are overwhelmed with applications for employment from mechanics and enginemen arriving at the Cape from England and Australia, and there is no prospect at present of such artisans finding employment on the Cape Government railways.

PROPOSED IMPROVEMENTS, SHEFFIELD.—On the 20th ult., Mr. Frederick Harrison Tulloch, an inspector appointed by the Local Government Board, held an inquiry at the Town Clerk's office concerning an application made by the City Council for the Board's sanction to borrow the respective sums of 54,595*l.* for works of street improvement, 17,751*l.* for works of sewerage, 6,400*l.* for the erection of a bridge and for purposes of street improvement, and 5,820*l.* for the purpose of water supply, the total amount proposed to be borrowed being 84,566*l.* The Corporation officials present were the Town Clerk (Mr. J. W. Pye-Smith), the City Surveyor (Mr. C. F. Wike), Mr. John Ward (Deputy Surveyor), and Mr. W. Terrey (Assistant Manager of the Water Department). The Town Clerk first explained the requirements of the Corporation with respect to the sum of 5,820*l.* for purposes of water supply. The next item taken was the application to borrow 54,595*l.* for street improvements, and the Town Clerk informed the inspector that it was made under the Public Health Act. The sum asked was rather a large one, and was principally to provide granite paving, which came within the category of permanent works. The streets in which granite paving would be laid down were Bramall-lane, Broomhall-street, Queen's-road, Effingham-road, Carlisle-street East, Penistone-road, and part of Holme-lane, while Leopold-street and Surrey-street would be paved with wood. All these streets were highways repairable by the inhabitants of the city out of the district rate. Leopold-street and Surrey-street were in one line, and in a district where there were a good many offices and public institutions, among them being the new Town-hall, which would be occupied about the beginning of 1895. The School Board, Assay, and Stamp Offices, and other similar buildings were also in that line of street, and it was thought granite would prove too noisy to pave with. Respecting the application to borrow 17,751*l.* for works of sewerage, the Inspector was informed by the City Surveyor that this sum was principally for constructing 3½ miles of brick-sewers, chiefly in Abbeydale-road, in which it was proposed to lay down about two and one-third miles of sewers, at an estimated cost of 13,000*l.* The City was extending so rapidly in that direction that it was necessary to take the drainage works to the very boundary. A new brick sewer, about 210 yards long, had also to be laid down in Fargate, and provision had to be made for the supply of pipe-sewers, partly in place of old sewers and partly as links between a sewer and the extension of the outfall. The final item considered was the sum of 6,400*l.* required to cover the cost of the new wrought-iron bridge from Pond Hill to Sheaf-street, and also the widening and some general improvements to Tudor-street and Arundel-street. This concluded the inquiry, and the Inspector subsequently visited some of the streets and works concerning which the investigation had been conducted.

WINDOWS, ST. MICHAEL'S CHURCH, BARNES.—The north and south windows in the apse of St. Michael's, Barnes, have now been filled with stained glass, the subjects being the angels Raphael and Gabriel. The work was designed and executed by Messrs. Percy Bacon & Brothers, of London.

CHRIST CHURCH CATHEDRAL, DUBLIN.—On the 26th ult., Mr. Thomas Drew, R.H.A., architect to Christ Church Cathedral, Dublin, delivered a popular lecture on Christ Church and its history to a large number of visitors. He said the cathedral differed from other churches in not having a record of discord or religious dissensions. It was not plundered by Henry VIII., and no religious community was ever expelled from its walls. It was in no sense an Irish church. Its history went back to the occupation of Dublin by the Danes 1,400 years ago. After the battle at Clontarf, Edric Silkbeard, a Danish king, became a Christian, and in 1038 A.D. built a church, the foundations of which constitute the crypt which exists under the present cathedral. On the site of that Danish church the first Anglo-Norman one was founded in 1170 A.D.

by Earl Strongbow, Raymond le Gros, Fitzstephen, and the famous Archbishop of Dublin, St. Laurence O'Toole. Other historical particulars, including the crowning in the cathedral of Lambert Simnel, and the destruction of the statues and attempts to mutilate and burn the royal arms over the State pew by Oliver Cromwell's army, were mentioned by the lecturer, whose account of the building reached down to the last restoration of it some years since by Mr. Rowe.

APPOINTMENT.—Mr. Norman Scorgie, A.M.Inst.C.E., Chief Engineering Assistant to the Leicester Borough Engineer and Surveyor, has been elected, from fifty-one candidates, Surveyor to the Vestry of the Parish of Rotherhithe, S.E. Mr. Scorgie has been an assistant to the Borough Surveyor since March, 1883.

SOCIETY OF ARTS.—The ordinary meetings will recommence after the Christmas recess on the 17th inst., when Mr. A. P. Laurie will read a paper on "White Lead Substitutes." Some of the arrangements for the succeeding Wednesdays are as follows:—January 24, "American Carriages," by Mr. G. Herbert Thrupp; February 7, "Reproduction of Colours by Photography," by Captain Abney, C.B., F.R.S.; February 14, "The St. Pancras Electric Light Installation," by Mr. Henry Robinson, M.Inst.C.E.; February 21, "Electric Signalling Without Wires," by Mr. W. H. Preece, C.B., F.R.S. The next course of Cantor Lectures will be delivered on Monday evenings, January 22, 29, and February 5, 12, by Professor Frank Clowes, D.Sc., the subject being "The Detection and Measurement of Inflammable Gas and Vapour in the Air." Mr. Hugh Stannus, F.R.I.B.A., will give a course of Cantor Lectures on "The Decorative Treatment of Traditional Foliage" on February 19, 26, and March 5, 12. Further Cantor Lectures will be delivered by Captain Abney on "Photometry," and by Mr. H. C. Jenkins on "Typewriting Machines."

MEETINGS.

FRIDAY, JANUARY 5.

Architectural Association.—Mr. A. O. Collard on 'Difficulties of the Young Architect." 7.30 p.m.

Junior Engineering Society.—Professor Vivian B. Lewes on "Boiler Incrustations and Deposits." 8 p.m.

Institution of Civil Engineers (Students' Meeting).—Mr. Arthur R. Gale on "Refrigerating Machines." 7.30 p.m.

SATURDAY, JANUARY 6.

Sanitary Inspectors' Association.—(1) Election of Members; (2) Annual New Year's Address by the President, Sir B. W. Richardson. 6 p.m.

MONDAY, JANUARY 8.

Royal Institute of British Architects.—General Business Meeting. (1) Award of Prizes and Studentships; (2) Mr. Maurice B. Adams on "Blickling Hall, Norfolk: its Drainage, Water Supply and other Works." 8 p.m.

Leeds and Yorkshire Architectural Society.—Dinner at the Queen's Hotel.

Surveyors' Institution.—Mr. E. J. Harper on "Trade Claims." 8 p.m.

TUESDAY, JANUARY 9.

Institution of Civil Engineers.—Mr. Robert E. Commans on "The Concentration and Sizing of Crushed Minerals." 8 p.m.

WEDNESDAY, JANUARY 10.

Edinburgh Architectural Association.—The Rev. R. Scott Mylne on "The Influence of the Mylnes on the Architecture of Edinburgh." 8 p.m.

Northern Architectural Association.—A selection of Architectural Slides, illustrating various English Cathedrals, to be exhibited. 7.30 p.m.

THURSDAY, JANUARY 11.

Institution of Electrical Engineers.—Inaugural Address by the President, Mr. Alexander Siemens, M.Inst.C.E. 8 p.m.

London Institution.—Mr. Wyke Bayliss on "Shakespeare in Relation to his Contemporaries in the Fine Arts." 6 p.m.

Society of Antiquaries.—8.30 p.m.

FRIDAY, JANUARY 12.

Incorporated Association of Municipal and County Engineers (Metropolitan District Meeting).—(1) Mr. C. Mason on "Street Pavements, with special reference to what has recently been done in the Strand, Long Acre, &c."; (2) Mr. W. N. Blair on "The Jointing of Wood Pavements"; (3) Mr. C. H. Cooper on "Hospital Tents." 7.30 p.m.

Institution of Civil Engineers.—Students' Visit to the Millwall Docks, to inspect machinery for discharging and storing grain. 2.15 p.m.

Society of Biblical Archæology.—Anniversary Meeting. 8 p.m.

Glasgow Architectural Association.—Mr. R. Wemyss on "Sir W. Chambers." 8 p.m.

SATURDAY, JANUARY 13.

Northern Architectural Association.—Visit to the Chillingham-road Board Schools, at 3.0 p.m., when the Heating and Ventilating Apparatus, "Plenum System," will be in operation.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

23,111.—SLIDING DOORS: *D. Doyen and J. Didion* (Brussels).—No rollers or balls are used in connexion with this invention. The door is suspended by two articulated levers forming a cross, arranged so that the door moves constantly in the same straight position and without support. The "articulated" levers turn on pivots, folding on themselves, and taking up but little room. As friction is avoided the motion is very gentle.

1,207.—HINGES: *T. Ryland.*—In order to provide a leaf of a hinge which can be adjusted in relation to the other leaf, an adjustable pin is, according to this patent, used which bears on its lower end on the bottom of a socket formed on the knuckle of the other leaf of the hinge.

1,315.—PREVENTING FREEZING OF WATER-PIPES: *B. M. Drake and J. M. Gosham.*—Wires conducting electricity, according to this invention, are passed through the pipes, then connected with a current so as to generate heat and prevent the formation of ice.

1,348.—SELF-CLOSING GATES: *J. G. Rowe.*—A twisted pivot and bearing to correspond is used as a hinge, so that the gate rises when opened and closes itself by the action of gravity.

1,703.—SAWS: *T. B. Blow.*—Saws, which cut both with the up and the down strokes, are made by providing the saw with teeth, half cutting one way and half the other. The middle edge of the saw-blade is left more or less hollow.

1,823.—GATES: *W. G. Dawkins.*—An oblique bar and central support are used to prevent the gate "sagging" or "drooping."

19,444.—PROTECTIVE PAINT: *T. Cohn.*—A protective paint, which is the subject of this patent, is made mainly of oxide of lead, common salt, and a soluble salt of a heavy metal, the whole stirred up and applied as ordinary paint.

19,797.—GLAZED BRICKS: *J. W. Martin.*—The bricks are really faced with glass, pieces of glass being retained on the brick or wall by cement.

NEW APPLICATIONS FOR LETTERS PATENT.

DECEMBER 18.—24,289, W. Matthews, Water-closet Fittings.—24,296, S. Linscott and J. Tinsdale, Latch Fastenings for Windows.—24,298, S. Wiseman, Window-Sash, Casement, and Door Fasteners.—24,332, F. Brook, Gullies.—24,360, St. Jassoy, Constructing Pavement Stones, Pavements, Landings, &c.

DECEMBER 19.—24,380, W. Nicol, Window-Sashes.—24,401, J. Ryder, Arranging Bricks in Kilns Previous to Firing.—24,424, O. Hetterick, Process for Making Wood Incombustible.

DECEMBER 20.—24,511, H. Fuller and T. Wyatt, Weather Strip.

DECEMBER 21.—24,561, G. Kinson, Construction of Enamelling, Hardening on, and Majolica Kilns.—24,578, J. Jones and A. Leach, Ornamenting Wood.—24,579, J. Jones and A. Leach, Machinery for Stop Chamfering or Similarly Ornamenting Timber, &c.—24,593, S. Wilson, Fastener for Windows, Sashes, &c.—24,598, T. Perry, Window-Sash Fasteners.

DECEMBER 22.—24,658, J. Young, Weather Bars for Casements and Windows.—24,673, W. Benning and J. Maass, Prevention of Smoky Chimneys.—24,680, M. Syer, Drain Plug.

DECEMBER 23.—24,738. M. Syer, Water-closet Pan and Trap.—24,759, F. Gibbons, Locks for Window-sashes, and Keys for same.—24,778, W. Large, Mitre Cutting-machine.—24,780, J. Campbell, Raising, Lowering, and Retaining Window-sashes, &c.—24,781, S. Hansen, Stone-dressing Machines.—24,804, A. Hill, Connecting or Joining together Pipes.—24,813, F. Scruby and W. Bowley, Fireproof Wall and Ceiling Covering or Decoration.

PROVISIONAL SPECIFICATIONS ACCEPTED.

22,294, A. Boult, Construction of Ceilings, Floors, &c.—23,112, H. Lake, Apparatus for Setting Saws.—23,278, H. Dickinson, Reversible Metallic Lathing and Machinery for producing the same.—23,495, J. Bates, Kilns for Drying and Burning Bricks, Tiles, Earthenware Pipes, &c.—23,661, C. Pattinson, Prevention of Burst Water-pipes.—23,729, J. Hay, Window-sashes.—23,815, C. Jackson, Sash-fasteners.—23,977, A. Giesau, Chimney Pot.

COMPLETE SPECIFICATIONS ACCEPTED.

(Open to Opposition for Two Months.)

3,508, J. Clayton, Sash-fasteners.—7,627, W. Monro, Bolt for Doors, Cupboards, &c.—8,211, J. Biddcough, Construction of Blades or Saws for Sawing or Cutting Stone.—9,825, E. Edwards, Paint.—14,738, J. Flannery and S. Terry, Ventilation of Enclosed Spaces.—19,969, A. Brookes, Finishing or Polishing the Surface of Wood, &c. 22,280, C. Schlickeyson, Bricks, Terra-cottas, &c.—22,294, E. Waller, Lead.

PRICES CURRENT OF MATERIALS.

TIMBER.

Greenheart, B.G.	ton	9/0/0	0/0/0
Teak, E.I.	load	9/10/0	15/10/0
Sequoia, U.S.ft.cu		2/3	2/6
Ash, Canada	load	2/10/0	3/15/0
Birch, do.		2/10/0	3 10 0
Elm, do.		3/5/0	4/10 0
Fir, Dantsic, &c.		1/5/0	2 10/0
Oak, do.		2/15/0	5/0/0
Canada		5/10/0	7/0/0
Pine, Canada red		2/15/0	3 5/0
Do. Yellow		2/5/0	4/10/0
Lath, Dantsic, fath		4/10/0	5/10/0
St. Petersburg		5/0/0	6/10.0
Wainscot, Riga, &c., log		2/5/0	4/10'0
Odessa, crown		2/5/0	4/10 0
Deals, Finland 2nd & 1st std	100	8/0/0	10/10/0
Do. 4th & 3rd		7/10,0	8/0/0
Do. Riga		7/10.0	9/0.0
St. Petersburg, 1st yellow		10/0/0	13 10/0
Do. 2nd yellow		8/0/0	9/0/0
Do. white		8/10/0	11/0 0
Swedish		8/0/0	16,0.0
White Sea		8,0/0	16/10/0
Canada, Pine 1st		22/10 0	29/10/0
Do. do. 2nd		17/0/0	18/10/0
Do. do. 3rd, &c.		7/10/0	10/10/0
Do. Spruce, 1st		9 0/0	11/0/0
Do. do. 3rd & 2nd		6/10/0	7/15/0
New Brunswick		6/0/0	7/5.0
Battens, all kinds		3.0/0	15/0/0
Flooring boards, sq., 1 in. prep. 1st		0/10/6	0/15/0
Do. 2nd		0/7/6	0/13/0
Other qualities		0 5/3	0/7.0
Cedar, Cuba	ft.	/4	/4½
Honduras, &c.		/3½	/4½
Mahogany, Cuba		/3½	/6
St. Domingo, cargo av.		/3	1/6
Mexican do. do.		/3½	/4
Tobasco do. do.		/3½	/6
Honduras do.		/4	/5½
Box, Turkey	ton	4/0/0	13/0/0
Rose, Rio		8 0/0	20/0/0
Bahia		7/0/0	18/0/0
Satin, St. Domingo		0/0/6	0/1/3

TIMBER (*continued*).

Satin, Porto Rico		0/0/7	0/1/6
Walnut, Italian		0/0/3½	0/0/7

METALS.

Iron—Pig, in Scotland	ton	2/3/7½	0/0/0
Bar, Welsh, in London		5/17/6	6/0/0
Do. do. at works in Wales		5/7/6	5/10/0
Do. Staffordshire, in London		6/0/0	6/10/0
COPPER—British cake and ingot		45/15/0	46/5/0
Best selected		46/5/0	47/0/0
Sheets, strong		54/0/0	0/0/0
Chili bars		42/18/9	43/3/9
YELLOW METAL	lb	0/0/4½	0/0/5
LEAD—Pig, Spanish	ton	9/10/0	0/0/0
English com. brands		9/12/6	0/0/0
Sheet, English, 6 lbs. per sq. ft. and upwards		11/5/0	0/0/0
Pipe		11/15/0	0/0/0
ZINC—English sheet	ton	20/10/0	0/0/0
Vieille Montagne		21/0/0	0/0/0
TIN—Straits		73/10/0	74/0/0
Australian		73/15/0	74/5/0
English Ingots		79/0/0	79/10/0
Banca		79/0/0	80/0/0
Billiton		75/0/0	76/0/0

OILS.

Linseed	ton	20/2/6	20/5/0
Cocoanut, Cochin		34/0/0	0/0/0
Do, Ceylon		25/10/0	0/0/0
Palm, Lagos		25/10,0	0/0/0
Rapeseed, English pale		23/0/0	23/5/0
Do. brown		21/5/0	21/10/0
Cottenseed ref.		20-10/0	22/5/0
Oleine		22/0/0	24/0/0
Lubricating, U.S.		4/0/0	5/0/0
Do. refined		5/0/0	12/0/0
TAR—Stockholm	barrel	0/18/6	0/0/0
Archangel		0/12/6	0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.*]

ABERDEEN.—For the erection of Broomhill Public School, for the Aberdeen School Board. Mr. Alexander Mavor, architect, Union-street, Aberdeen. Quantities by the architect:—

Masons' work.

P. Bisset & Son	£6,600	Wm. Farquharson	£5,568
Robert Smith	5,856	Charles Gordon	5,553
Alex. Milne & Sons	5,847	Geo. Fordyce & Co.	5,450
Greig & Craib	5,757	Henderson & Russel	5,397
John Morgan	5,750	Ogg & Sons	5,225
Edgar Gauld	5,650	Thomas Grant	5,030
Pringle & Blessor	5,630	Gall & Walker, Richmond-street*	4,971
Robt. Buchan	5,600		
James Gauld	5,572		

* Accepted.

Carpenters' work.

John Henderson	£3,050	McRobbie & Milne	£2,666
Alex. Hall	2,998 10 0	Simpson & Walker	2,630
Wm. Dawson	2,984	James Garvie & Sons	2,598
James Forbes	2,837	Watson & Robb	2,597
Watt & Clark	2,796 10	Hendry & Keith, 21, Gilcomston Park*	2,470 10
James Farquhar	2,785		

* Accepted.

Iron works.

McLellan&Co., Ltd.	£1,046 19 9	George Bissit, 12, Sugarhouse-lane*	£815 11
Wm. McKinnon&Co.	849 15	Blackie Bros., Ltd.	814 11
James Abernethy & Co.	823 15 1		

*Accepted.

Slaters' work.

Forbes, Morrison	£199 15	G. Currie	£171 4 4
Alex. Murray	189 10	Wm. W. Milne	170
Alex. E. Merson	187 7	Alex, Adam & Co.	168 17
James Morren	183 12	George Davidson, junr.	165
Geo. Farquhar	174	Alexander Law, 5, Little Chapel-st.	150
Wm. Coutts	172		

*Accepted.

Plumber's work.

A. B. Robertson	706	John Blackie & Sons, Littlejohn-street (accepted)	£658 10
John Campbell	702		
John T. Anderson	699 18 6		
James Munro	699 9	Walter Simpson, (withdrawn)	619
Thom & Strachen	697 14		

Plasterers' work.

Jas. Bannochie&Sons	£1,016 1 9	Roger & Baxter	£643
John Kirk & Co.	702 10 9	James Stephen & Son, Summer-street*	572
Scott & Sellar	679		

*Accepted.

Painters' and Glaziers' work.

Gordon & Watt	£585	Adam Buchan	£519
James McLeod	561 12	Alexr. Ferguson & Co.	517
B. Main	550	John Whyte	500
Mason & Son	547	Geo. Donald & Son, 18, Netherkirkgate*	408
Wm. Slaker & Sons	546 3	David Simpson	492
James Garvie & Sons.	539	J. M. Fenton	491 7
J. & S. Fyfe	524 15		

* Accepted.

BURNLEY.—Accepted for the construction of brick and concrete sewer, and incidental works, Lower House, Padiham, and Altham, for the Corporation. Mr. F. S. Button, C.E., Borough Surveyor, Town Hall, Burnley:—

Perkins, Graham & Co., 12, Bank-street, Royal Exchange, Manchester £13,514 10 4

COLCHESTER.—For underpinning to river wall at the "White Horse" Inn, East-street, Colchester, for Mr. Charles Armstrong. Mr. J. W. Start, F.S.I., civil engineer, Cups Chambers, Colchester:—

Ripper Bros.	£540	J. Harden, Colchester*	£288 15
H. Everett & Son	355		

* Accepted.

DORKING.—For the erection of proposed new Catholic Church Dorking, Surrey. Mr. Frederick A. Walters, F.S.A., architect, No. 4, Great Queen-street, Westminster, S.W. Quantities by Mr. John B. Lofting:—

	Nave and Aisle.	North Aisle and Chapel.	Upper part of Tower.
F. & H. Higgs	£8,061	£1,567	£878
Colls & Sons	7,829	1,580	790
J. Smith & Sons	7,819	1,565	680
Mitchell Bros.	7,788	1,451	693
Goddard & Sons	6,784	1,327	604
F. G. Minter	6,537	1,270	670
J. Longley & Co.	6,395	1,295	662

HALIFAX.—For making 2,050 yards main drains, with manholes, &c., Southowram (*No. 1 Contract*), for the Local Board. Mr. W. H. D. Horsfall, surveyor, &c., 9, Harrison-road, Halifax:—

James Bateman	£1,531 10 8	John Balmforth	£1,126 10
Arthur Bland	1,480 14 2	Waddington Bros. & Holmes	1,123 11
Thomas Kitchen	1,443 19 1	Riley Hopkinson	1,071 13
Henry Tyson	1,307 5 2	Hemingway & Marshall, Southowram, Halifax*	1,057 11
Matthew Hall	1,251 2 11		
B. & T. H. Riley	1,221 14 0		
H. Barraclough	1,194 14 5		
James Wells	1,184 11 8		
Godfrey Pearson	1,135 2 10		

*Accepted.

LONDON.—For cleaning interior of Drummond-road School, for the London School Board:—

Mowlem & Co.	£221 1 3	Williams	£125
W. & H. Castle	186	Holliday&Greenwood	87
Garrett & Son	140	Star & Son*	80 17

* Accepted.

LONDON.—For interior cleaning, &c., at Bonner-street Board School, for the School Board for London. Mr. T. J. Bailey, Architect:—

Kirby & Chase	£330	Marchant & Hirst	£150
Mowlem & Co.	160	Davenport	145
Stevens Bros.	158	Coxhead	135

LONDON.—For interior cleaning, &c., at Scawfell-s treet Board School for the School Board for London. Mr. T. J. Bailey, Architect:—

Martin	£377	McCormick	£209
Kirby & Chase	346	Dearing	205
Clark & Bracey	229	Marchant & Hirst	192

LONDON.—For interior cleaning, &c., at Ann-street Board School, for the School Board for London. Mr. T. J. Bailey, Architect:—

Kirby & Chase	£360	Marchant & Hirst	£183
Clark & Bracey	239	Clark	175
Hornett	207	Willmott & Son	172 15
Lidstone	205	Johnson & Co.	167
Green	192		

LONDON.—For interior cleaning, &c., Drury-lane Board School, for the School Board for London. Mr. T. J. Bailey, Architect:—

Green	£212 0	Hornett	£173 0
Clarke	185 0	Cruwys	164 10
Marchant & Hirst	183 0	Minter	159 0
Johnson & Co.	180 0	Kent	148 0

LONDON.—For interior cleaning at Station-road Board School, for the School Board for London. Mr. T. J. Bailey, Architect:—

Williams & Son	£275	McCormick	£230
Grover & Son	256	W. H. Stephens	220
Houghton & Son	248	Stevens Bros.	187
Lidstone	241	Marchant & Hirst	179

LONDON.—For interior cleaning at White Lion-street Board School, for the School Board for London. Mr. T. J. Bailey, Architect:—

Kirby & Chase	£240 0 0	Houghton & Son	£116 0 0
R. C. Clarke	175 0 0	Dearing & Son	108 0 0
Taylor & Son	138 0 0	Marchant & Hirst	97 0 0
McCormick & Son	121 0 0	W. H. Stephens	72 12 6!

LONDON.—For interior cleaning, &c., at Aldenham-street Board School, for the School Board for London. Mr. T. J. Bailey, Architect:—

Eyers	£289	Hornett	£165
Salter	220	Marchant & Hirst	157
Johnson & Co.	193	T. Cruwys	155

LONDON.—For interior cleaning, &c., at Queen's Head-street, for the School Board for London. Mr. T. J. Bailey, Architect:—

Kirby & Chase	£340!	Grover & Son	£184
Taylor & Son	215	Marchant & Hirst	149
Houghton & Son	204	Stevens Bros.	148!
Dearing & Son	194		

LONDON.—Accepted for sanitary work at Alpha Buildings, Walworth. Messrs. John Taylor, Sons, & Santo Crimp, engineers:—
Thomas Heath £315 0 0

LONDON. — For reparations and additions to 58 and 60, Treverton-street, Ladbroke-grove-road, Kensington, North. Messrs. Morley & Letts, architects, 185, Earl's Court-road, S.W.:—

Whitaker	£680	N. C. Foale, 8, Chesterton-road (accepted)	£595
Simmonds Bros.	647		

LONDON.—For new drainage and sanitary fittings, 202, Earl's Court-road, S.W. Messrs. Morley & Letts, surveyors:—
Williams, Moreton-street, Pimlico £160 0 0

LONDON.—For decorative repairs, &c., 75, Redcliffe-gardens, Kensington. Messrs. Morley & Letts, surveyors:—

Williams	£240	J. Whitaker, Earl's Court*	£157
Simmonds Bros.	169		

* Accepted.

LONDON.—Accepted for alterations and repairs to four houses and shops at Nos. 409 to 415, Commercial-road, E. Mr. R. A. Rix, architect and surveyor, 26, Budge Row, City:—
James Holmes, South Hackney £820 0 0

LONDON.—For alterations and other works at Addington Lodge, Crouch Hill, for Mr. Venables. Mr. E. Hoole, architect:—

Canny & Hollidge	£1,665	Houghton & Son, Stroud Green (accepted)	£1,566
Macfarlane	1,600		

LONDON.—For the erection of dwelling house at Oakleigh Park Mr. A. Keen, architect, 4, Raymond-buildings, Gray's Inn:—

T. Emmett	£1,468	Mattock Bros.	£1,293
Barrett & Power	1,297	Woodrow & Pitcher	1,159

LONDON.—For the reconstruction of block "C" at the Workhouse, Marloes-road, W., for the Guardians of the Poor of the Parish of St. Mary Abbot's, Kensington. Mr. Thomas W. Aldwinkle, architect. Quantities by Mr. J. Leaning, 28, John-street, Bedford Row, W.C.:—

J. & C. Bowyer	£13,156 0 0	Kirk & Randall	£12,663 0 0
Garlick & Horton	13,150 0 0	W. Johnson & Co.	12,600 0 0
A. Kellett	13,012 3 4	H. L. Holloway	12,250 0 0
Leslie & Co.	12,924 0 0	J. H. Newman	12,140 0 0
J. Mears	12,850 0 0	Stimpson & Co.	11,866 0 0
Wall & Co.	12,780 0 0	C. Peek	11,827 0 0
F. & H. F. Higgs.	12,720 0 0		

LONDON.—For erecting business premises at No. 110, High-street, Wandsworth, for Messrs. Young & Price. Mr. R. W. Price, architect:—

Bulled & Co.	£959	Cooper	£798
Limmock	800	M. Taylor, Croydon*	767

*Accepted.

LONDON. — For erecting business premises, High-street, Croydon, for Messrs. Stapelton Bros. Mr. T. Hipwell, architect:—

Bryan & Son	£1,990	Bullock	£1,712
Page	1,735	M. Taylor, Croydon*	1,699
Waller, Junr.	1,720		

* Accepted.

LONDON.—For erecting stores, Sumner-road, Croydon, for Messrs. Sharpe & Co. Mr. R. Ridge, architect:—

Page	£205 0	M. Taylor*	£185 10
Goulder	198 0		

* Accepted.

LONDON.—For new school for 150 boys, for the trustees of Archbishop Tenison's Charity, Croydon. Messrs. Berney & Son, architects:—

	New School.	*Alterations to Old School.*
Smith & Sons	£1,665 0 0	—
Bulled & Co.	1,332 0 0	—
Barker	1,165 0 0	£350 0 0
Page	1,163 0 0	381 0 0
Bullock	1,151 0 0	369 0 0
M. Taylor	1,119 0 0*	357 0 0*

* Accepted.

LONDON.—Accepted for new stables, Gipsy Hill, for Messrs. Rickett, Smith, & Co. Mr. Denning, architect:—
M. Taylor £248 0 0

LONDON.—For general engineering work at the Workhouse Constance-road, East Dulwich, for the Guardians of the Poor of the Parish of St. Giles, Camberwell. Mr. Thomas W. Aldwinckle, architect:—

Clement Jeakes	£16,500	Berry	£13,734
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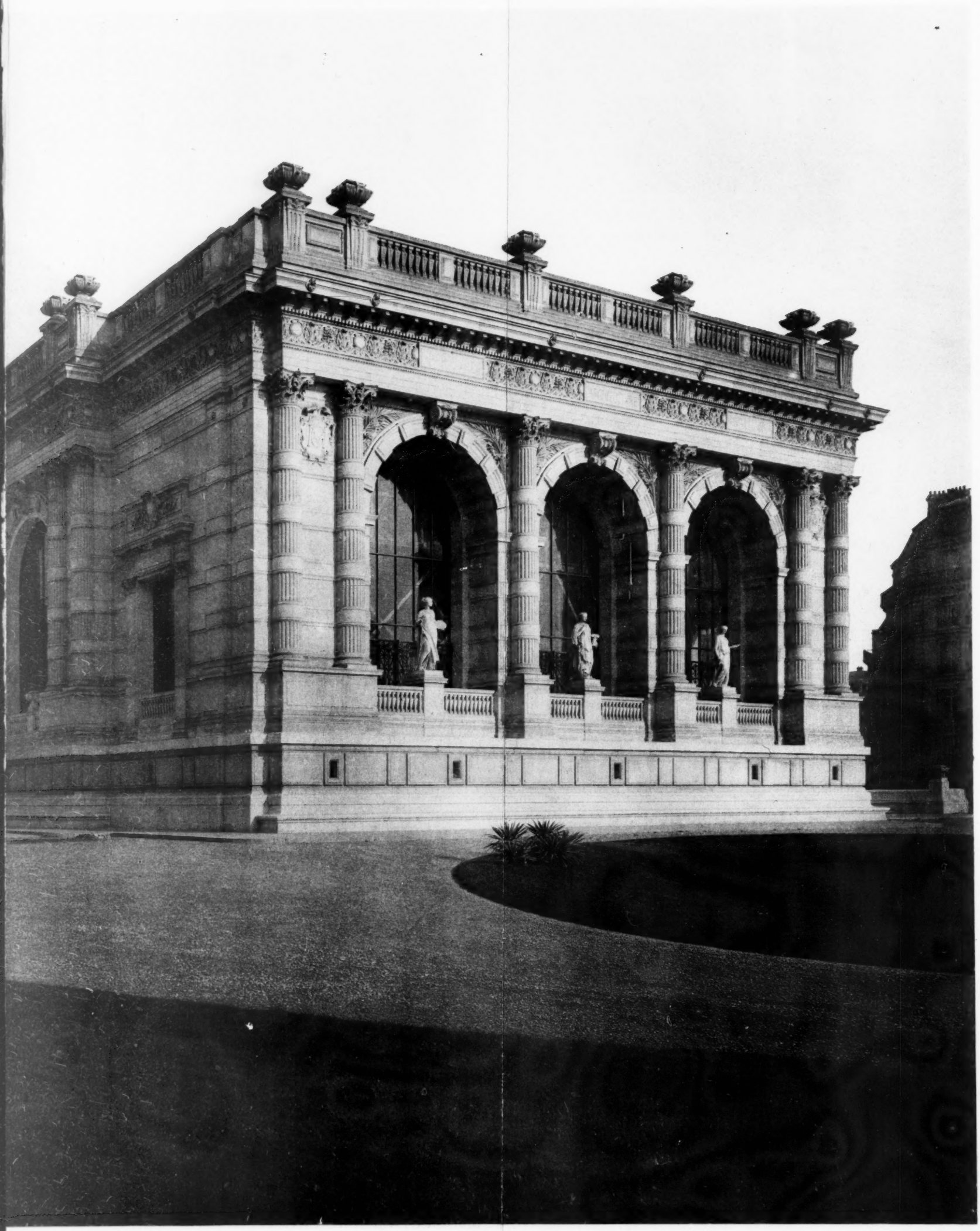

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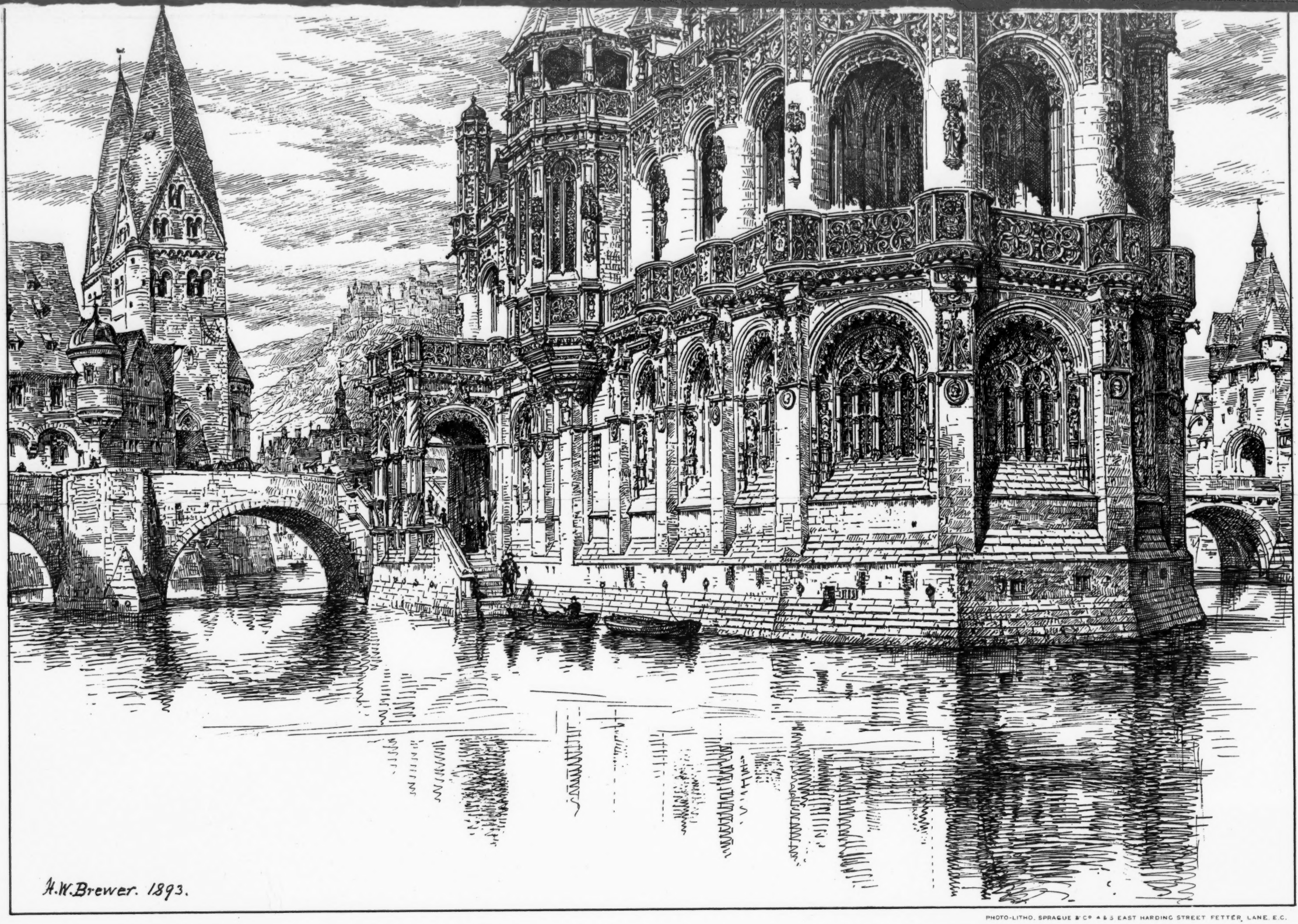
"The Town-council being at loggerheads with the Prince-Bishop, who held the left bank of the river & the Margrave who possessed the right, could obtain no land where on to build their Rath-haus, so they built it on the River's bed; that being NO MAN'S LAND."

A Tradition of the Main.



H.W.Brewer. 1893.

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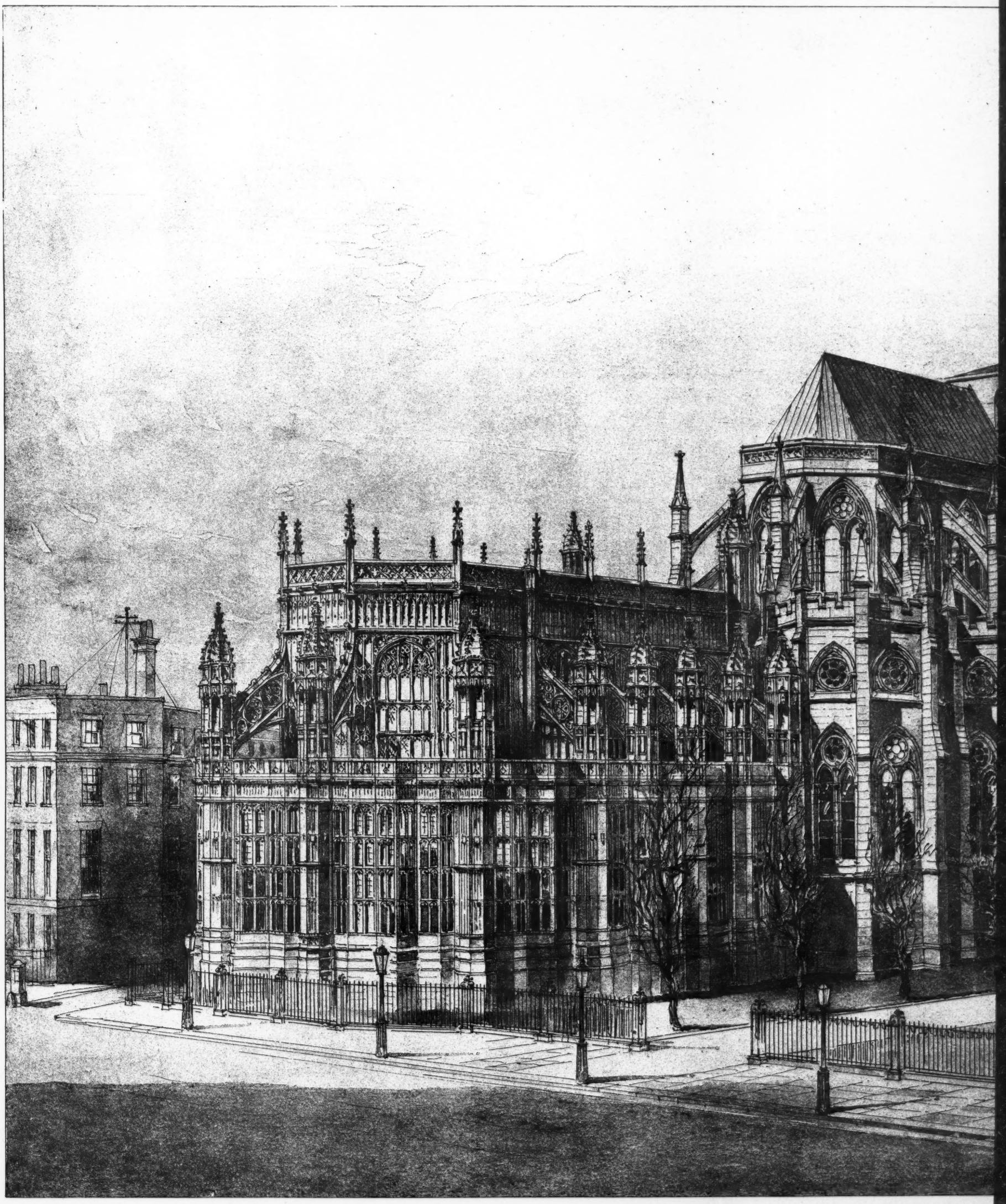
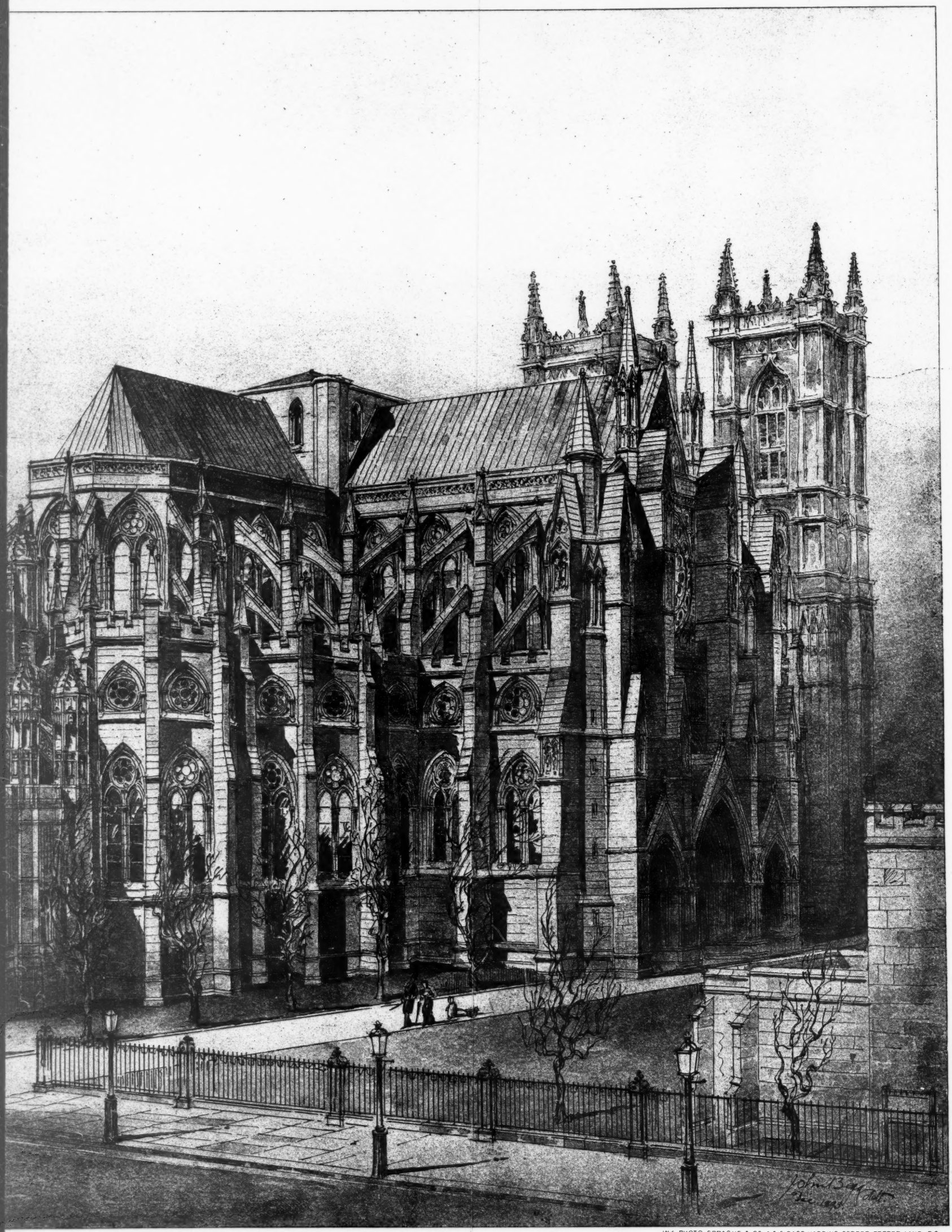


THE ABBEYS OF GREAT BRITAIN.—No. 1. WESTMINSTER: FR

DRAWN BY MR JOHN BEGG, A.R.I.B.A



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'AIN.—No. 1. WESTMINSTER: FROM THE NORTH-EAST.

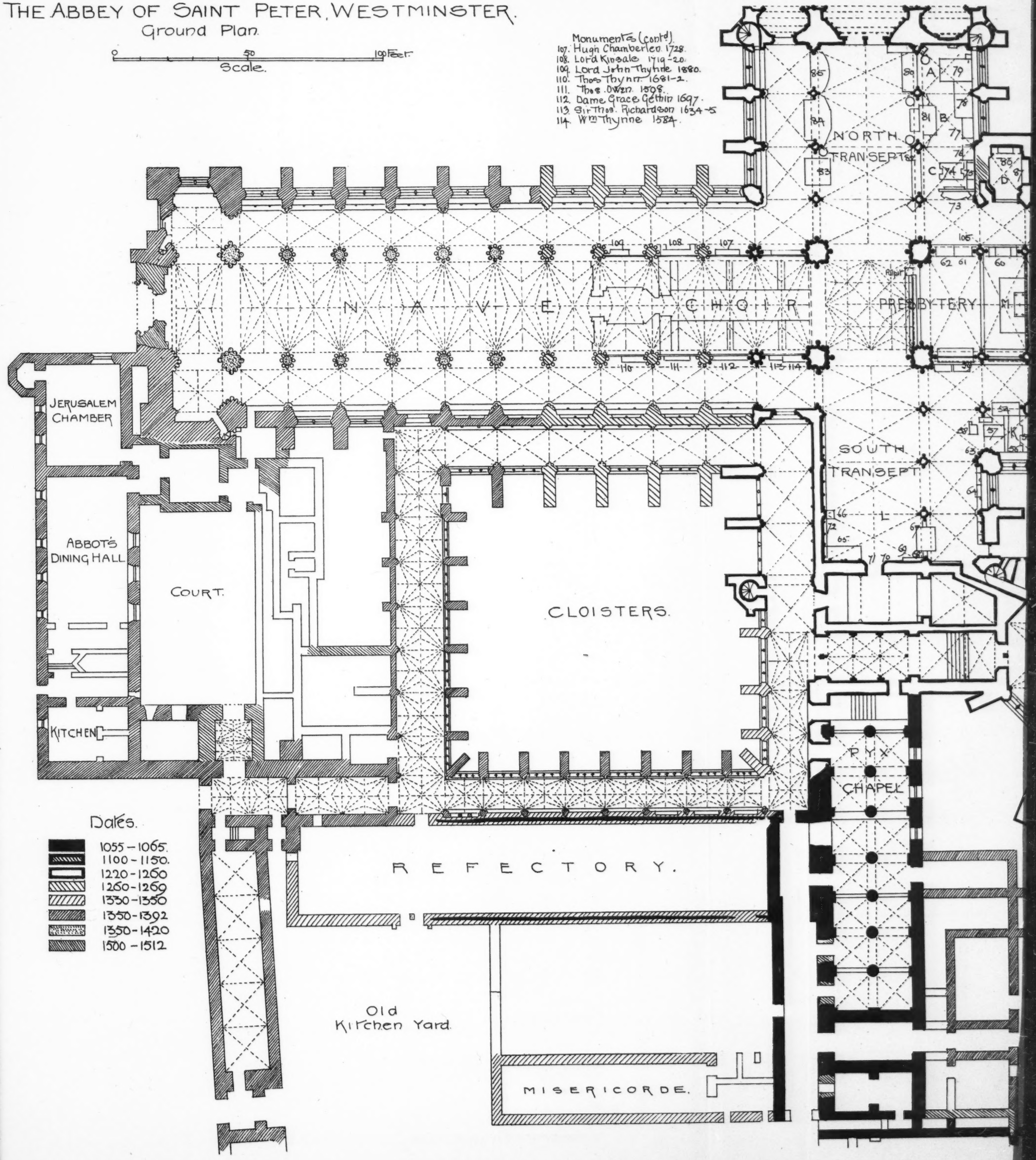
Drawn by Mr John Begg, A.R.I.B.A

THE ABBEY OF SAINT PETER, WESTMINSTER.

Ground Plan.

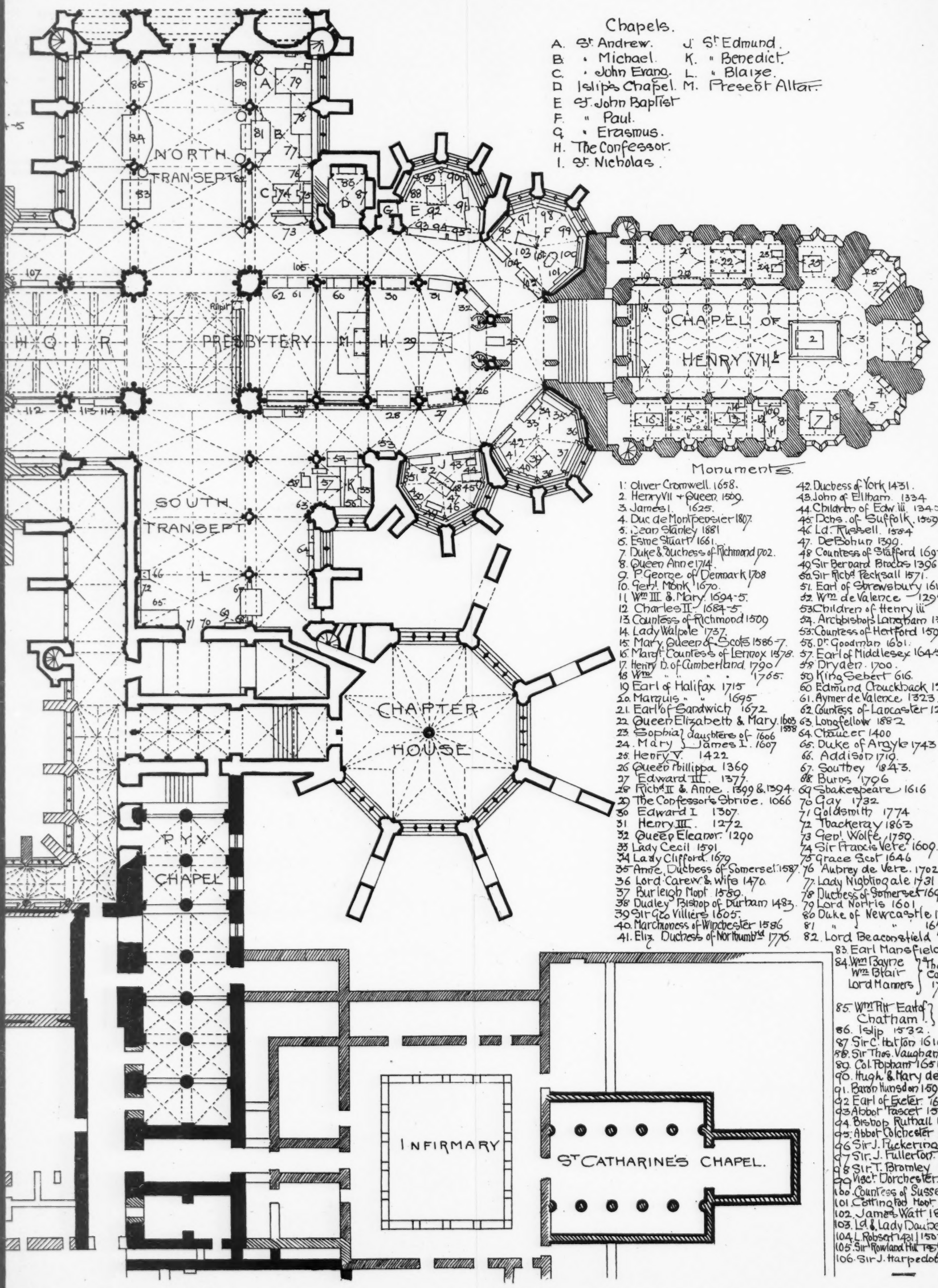
0 50 100 Feet.
Scale.

Monuments (contd).
107. Hugh Chamberlen 1728.
108. Lord Kinsale 1719-20.
109. Lord John Thynne 1880.
110. Thos Thynn 1681-2.
111. Thos. Owen 1598.
112. Dame Grace Gethin 1697.
113 Sir Thos. Richardson 1634-5
114. Wm Thynne 1584.



Dates.

	1055 – 1065.
	1100 – 1150.
	1220 – 1260
	1260 – 1269
	1330 – 1350
	1350 – 1392
	1350 – 1420
	1500 – 1512



Chapels.

A. St Andrew.
B. " Michael.
C. " John Evang.
D Islip's Chapel.
E St John Baptist
F. " Paul.
G. " Erasmus.
H. The Confessor.
I. St Nicholas.
J. St Edmund.
K. " Benedict.
L. " Blaize.
M. Present Altar.

Monuments.

1. Oliver Cromwell. 1658.
2. Henry VII + Queen. 1509.
3. James I. 1625.
4. Duc de Montpensier 1807.
5. Jean Stanley 1881
6. Esme Stuart 1661.
7. Duke & Duchess of Richmond 1702.
8. Queen Anne 1714.
9. P. George of Denmark 1708
10. Genl Monk 1670.
11. Wm III & Mary 1694-5.
12. Charles II 1684-5.
13. Countess of Richmond 1509
14. Lady Walpole 1737.
15. Mary Queen of Scots 1586-7.
16. Margt Countess of Lennox 1578.
17. Henry D. of Cumberland 1790
18. Wm " " " 1765.
19. Earl of Halifax 1715
20. Marquis " 1695
21. Earl of Sandwich 1672
22. Queen Elizabeth & Mary 1603 1558
23. Sophia } daughters of 1606
24. Mary } James I. 1607
25. Henry V. 1422
26. Queen Phillippa 1369
27. Edward III. 1377.
28. Richd II & Anne. 1399 & 1394
29. The Confessor's Shrine. 1066
30. Edward I 1307.
31. Henry III. 1272.
32. Queen Eleanor. 1290
33. Lady Cecil 1591
34. Lady Clifford. 1679
35. Annie, Duchess of Somerset 1587.
36. Lord Carew & Wife 1470.
37. Burleigh Monr 1589.
38. Dudley Bishop of Durham 1483.
39. Sir Geo Villiers 1605.
40. Marchioness of Winchester 1586
41. Eliz. Duchess of Northumbd 1776.
42. Duchess of York 1431.
43. John of Eltham. 1334.
44. Children of Edw iii. 1340.
45. Dchs. of Suffolk. 1559
46. Ld. Russell. 1584
47. De Bohun 1399.
48. Countess of Stafford 1693-4.
49. Sir Bernard Brocas 1396.
50. Sir Richd Pecksall 1571.
51. Earl of Shrewsbury 1617.
52. Wm de Valence 1296.
53. Children of Henry iii
54. Archbishop Langham 1376.
55. Countess of Hertford 1598.
56. Dr Goodman 1601.
57. Earl of Middlesex 1645.
58. Dryden. 1700.
59. King Sebert 616.
60. Edmund Crouchback 1296.
61. Aymer de Valence 1323.
62. Countess of Lancaster 1273.
63. Longfellow 1882
64. Chaucer 1400
65. Duke of Argyle 1743.
66. Addison 1719.
67. Southey 1843.
68. Burns 1796
69. Shakespeare 1616
70. Gay 1732.
71. Goldsmith 1774
72. Thackeray 1863
73. Genl Wolfe 1759.
74. Sir Francis Vere 1609.
75. Grace Scot 1646
76. Aubrey de Vere. 1702-3.
77. Lady Nightingale 1731.
78. Duchess of Somerset 1692.
79. Lord Norris 1601
80. Duke of Newcastle 1711.
81. " " 1676.
82. Lord Beaconsfield 1881.
83. Earl Mansfield 1793
84. Wm Bayne, Wm Blair, Lord Manners } The three Captains 1782
85. Wm Pitt Earl of Chatham. } 1778
86. Islip 1532.
87. Sir C. Hatton 1619
88. Sir Thos. Vaughan 1483
89. Col. Popham 1651
90. Hugh & Mary de Bohun. 1300
91. Baron Hunsdon 1596.
92. Earl of Exeter 1622.
93. Abbot Fascet 1500.
94. Bishop Ruthall 1523.
95. Abbot Colchester 1420.
96. Sir J. Fuckering 1596.
97. Sir J. Fullerton. 1630-1.
98. Sir T. Bromley 1587.
99. Visct Dorchester 1631-2
100. Countess of Sussex 1589.
101. Cottington Monr 1652.
102. James Watt 1819
103. Ld & Lady Dauntsey
104. L. Robsart 1431 | 1507 & 1600
105. Sir Rowland Hill 1679
106. Sir J. Harpedon 1457

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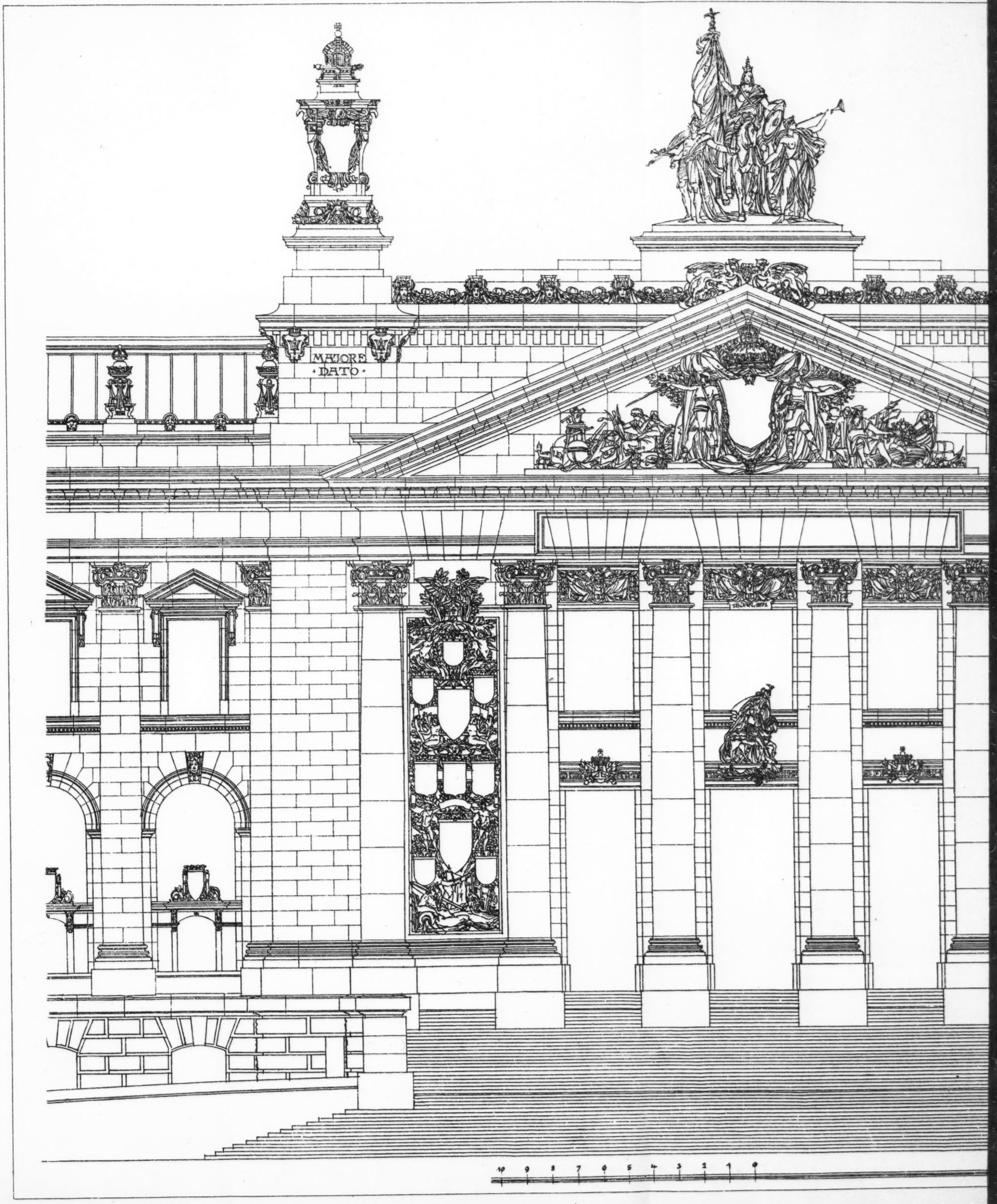


THE IMPERIAL PARLIAMENT HOUSES, BERLIN: ELEVATION OF CENTRE OF PRINCIPAL FRONT.

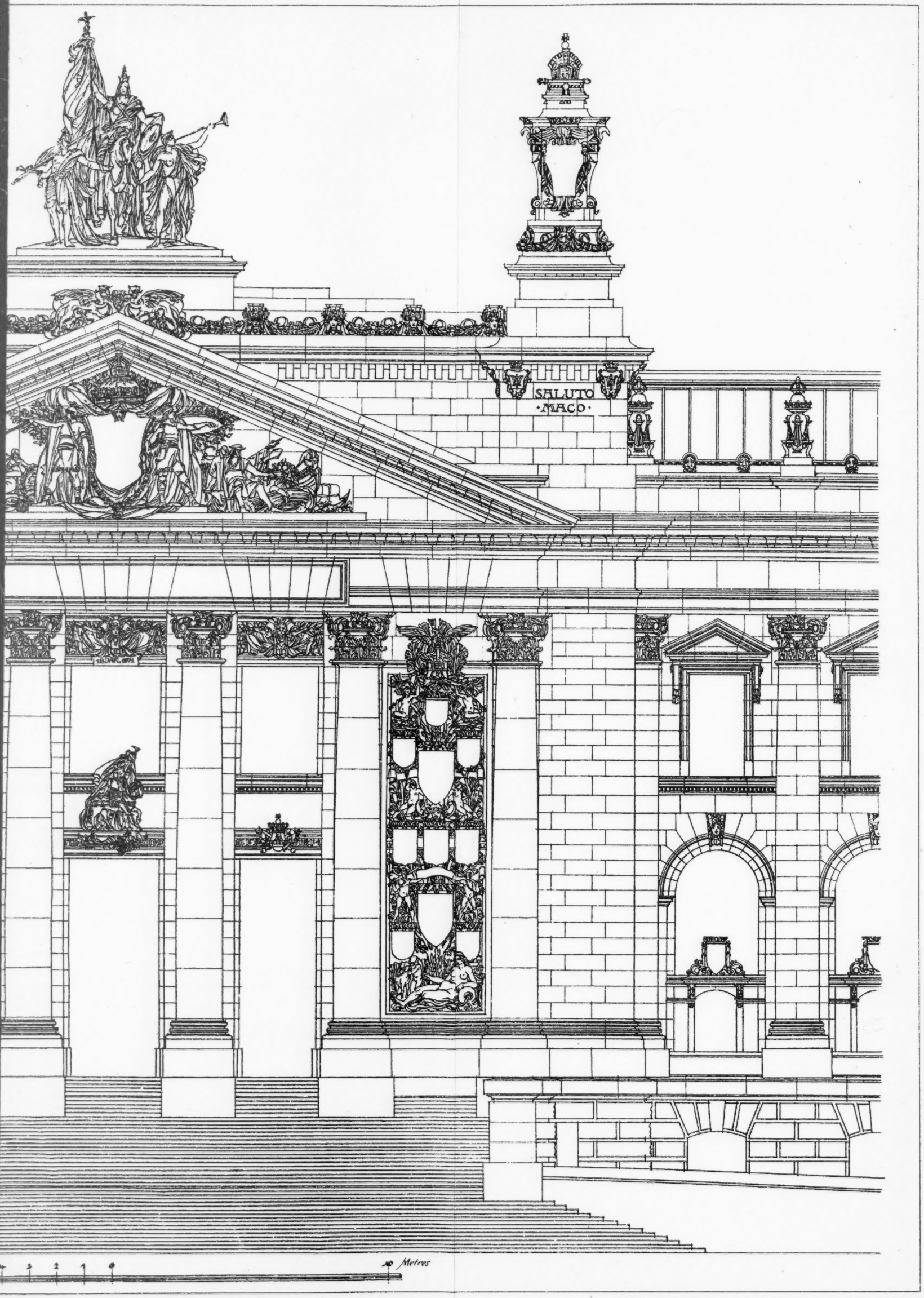
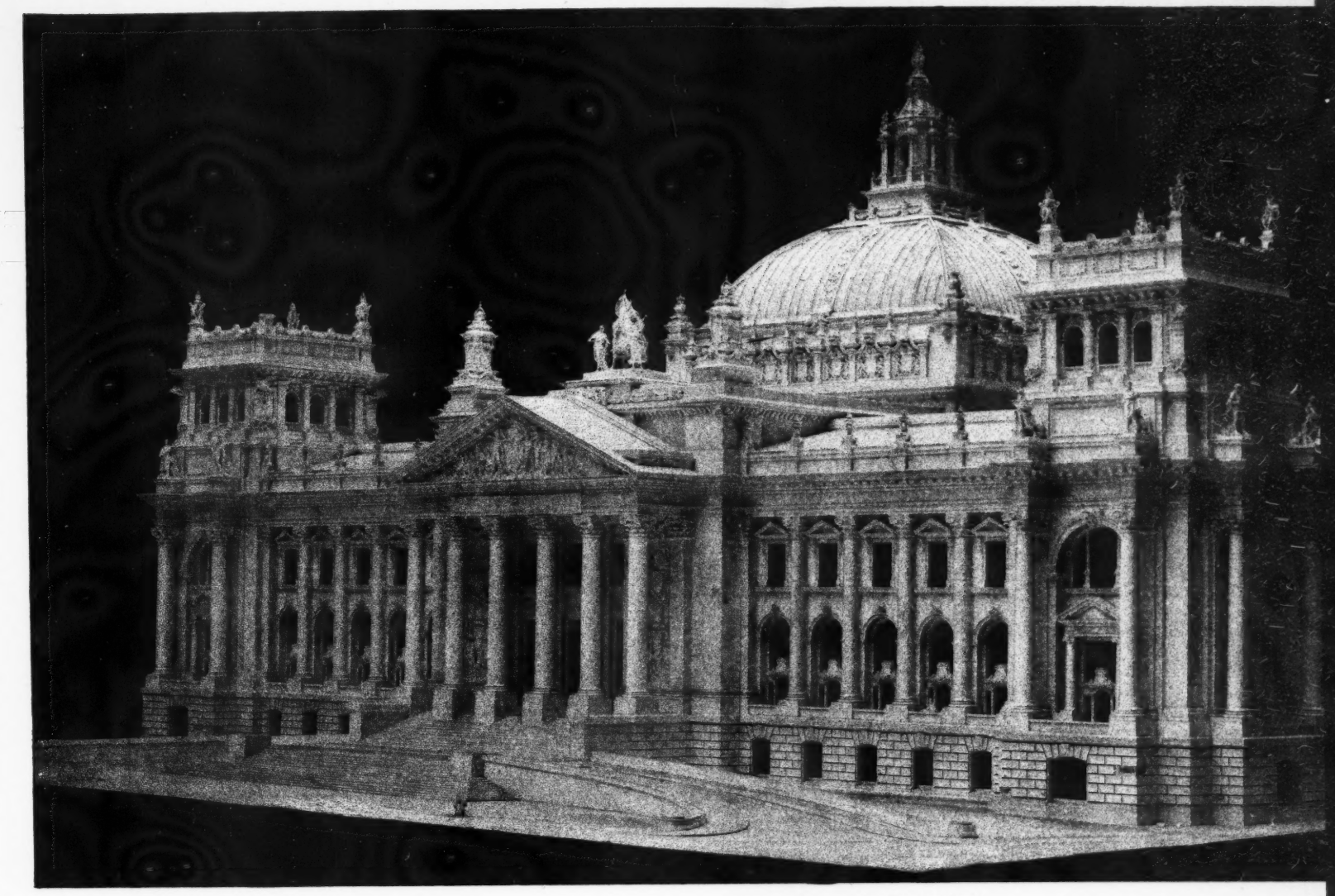
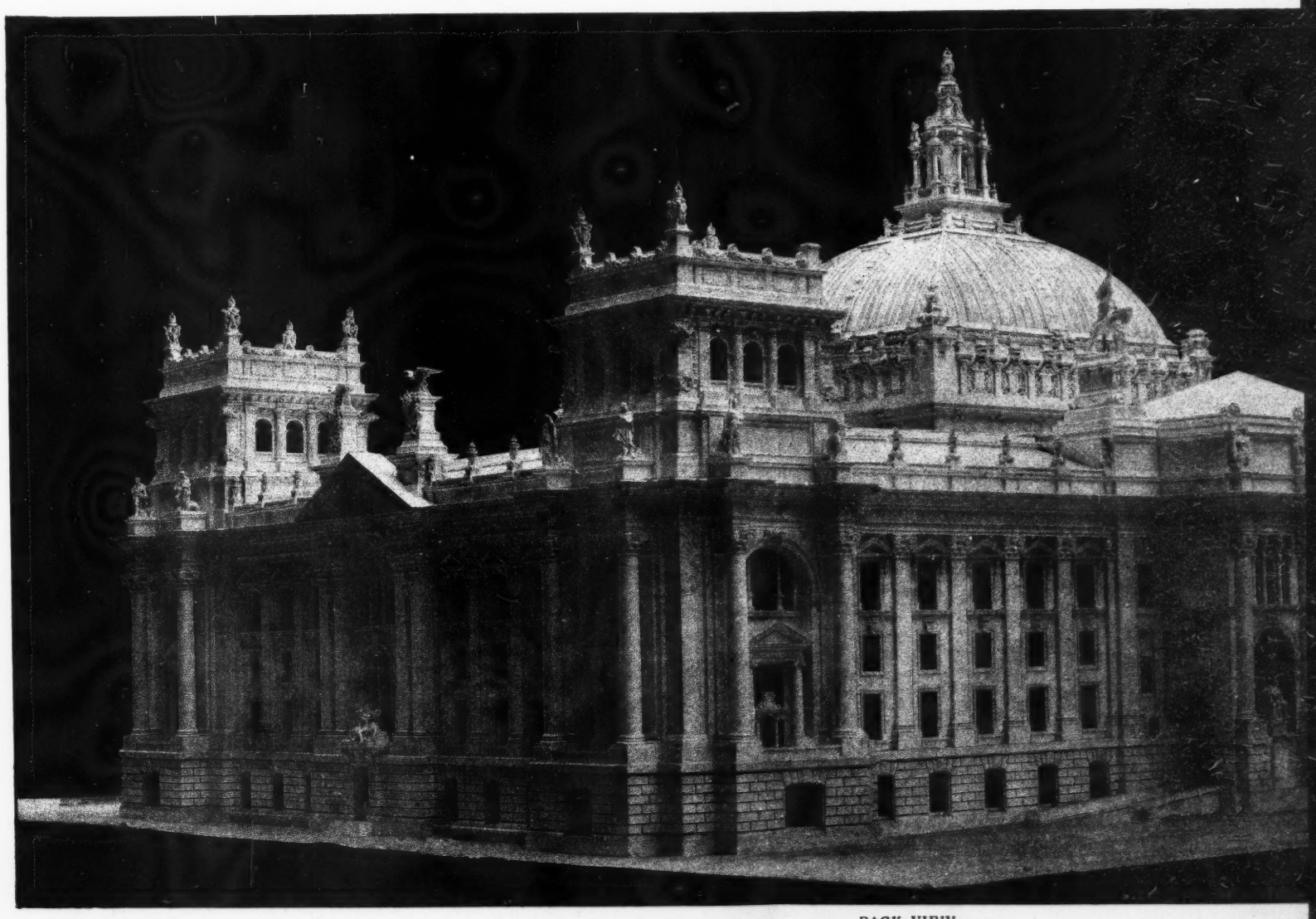


PHOTO-LITHO. SPRAGUE & Co. 4 & 5 EAST HARDING STREET FETTER LANE E.C.

IN: ELEVATION OF CENTRE OF PRINCIPAL FRONT.—Herr Paul Wallot, Architect.



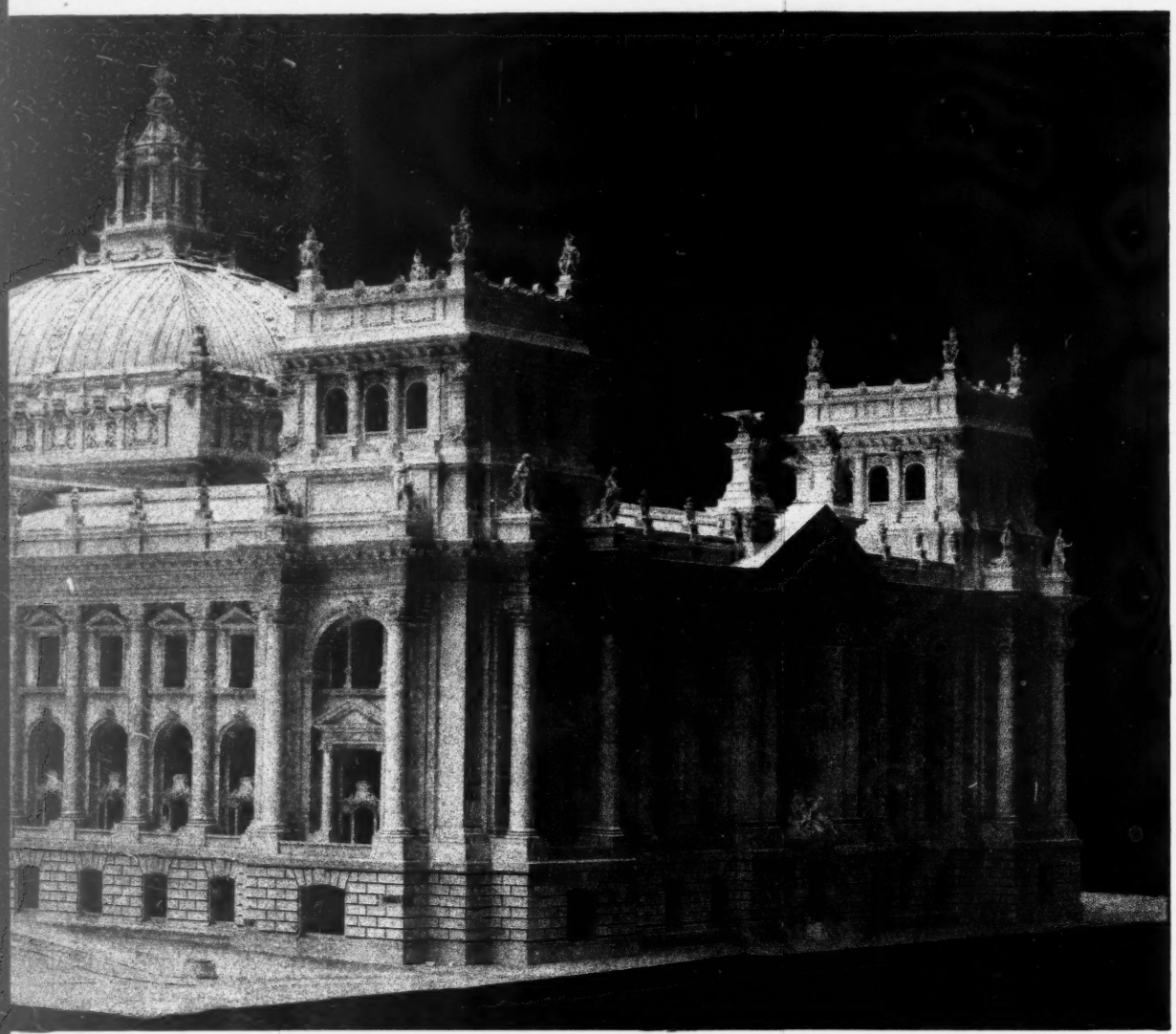
FRONT VIEW.



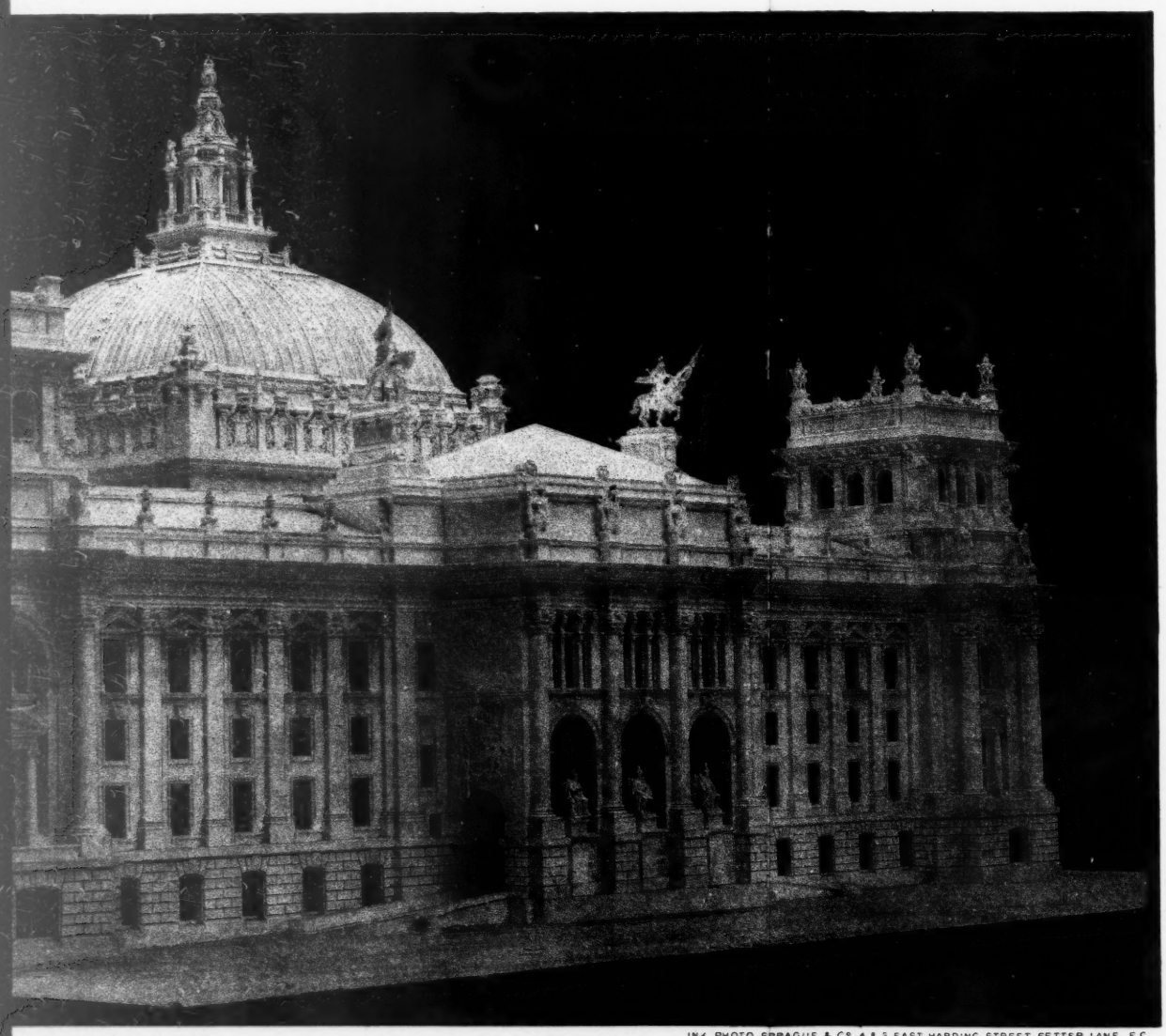
BACK VIEW.

THE IMPERIAL PARLIAMENT HOUSES, BERLIN.—Herr Paul Wallot, Architect.

PHOTOGRAPHED FROM THE MODEL PREPARED FOR THE CHICAGO EXHIBITION.



FRONT VIEW.



BACK VIEW.

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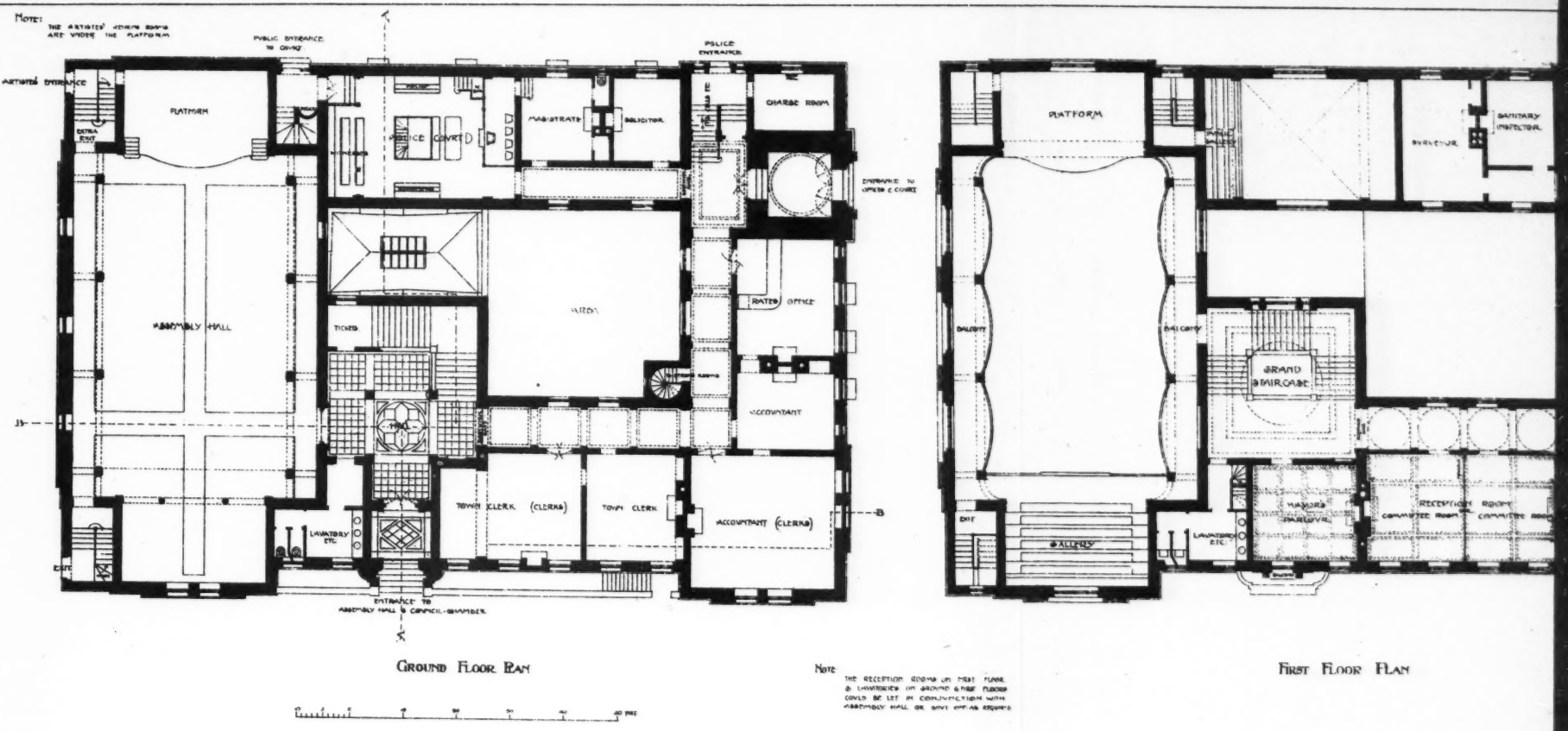
NT HOUSES, BERLIN.—Herr Paul Wallot, Architect.

THE MODEL PREPARED FOR THE CHICAGO EXHIBITION.



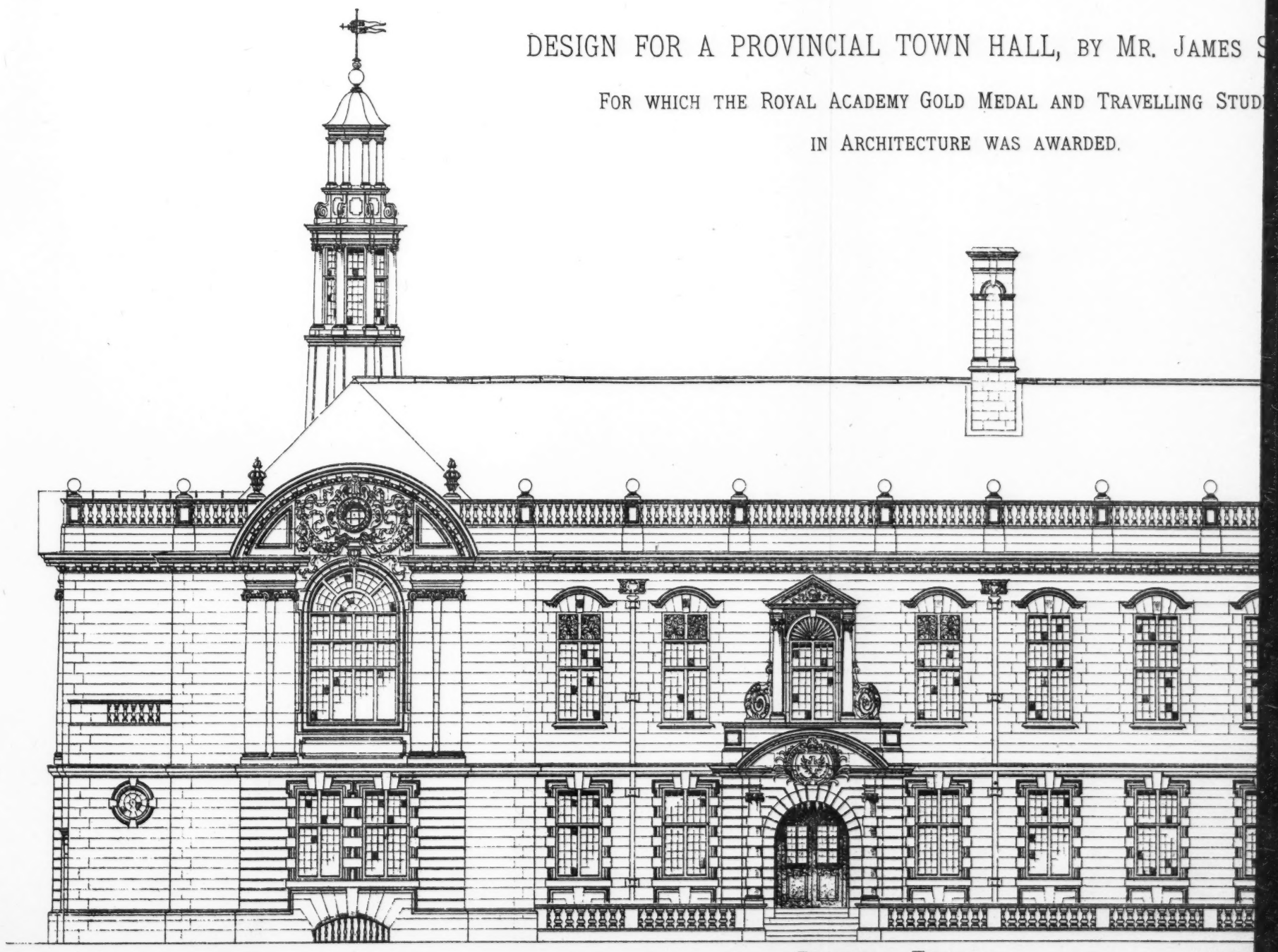
GROUND FLOOR PLAN

NOTE: THE RECEPTION ROOMS ON FIRST FLOOR & LAVATORIES ON GROUND & FIRST FLOORS COULD BE LET IN CONJUNCTION WITH ASSEMBLY HALL OR SUPPER ROOMS

FIRST FLOOR PLAN

DESIGN FOR A PROVINCIAL TOWN HALL, BY MR. JAMES S

FOR WHICH THE ROYAL ACADEMY GOLD MEDAL AND TRAVELLING STUD
IN ARCHITECTURE WAS AWARDED.



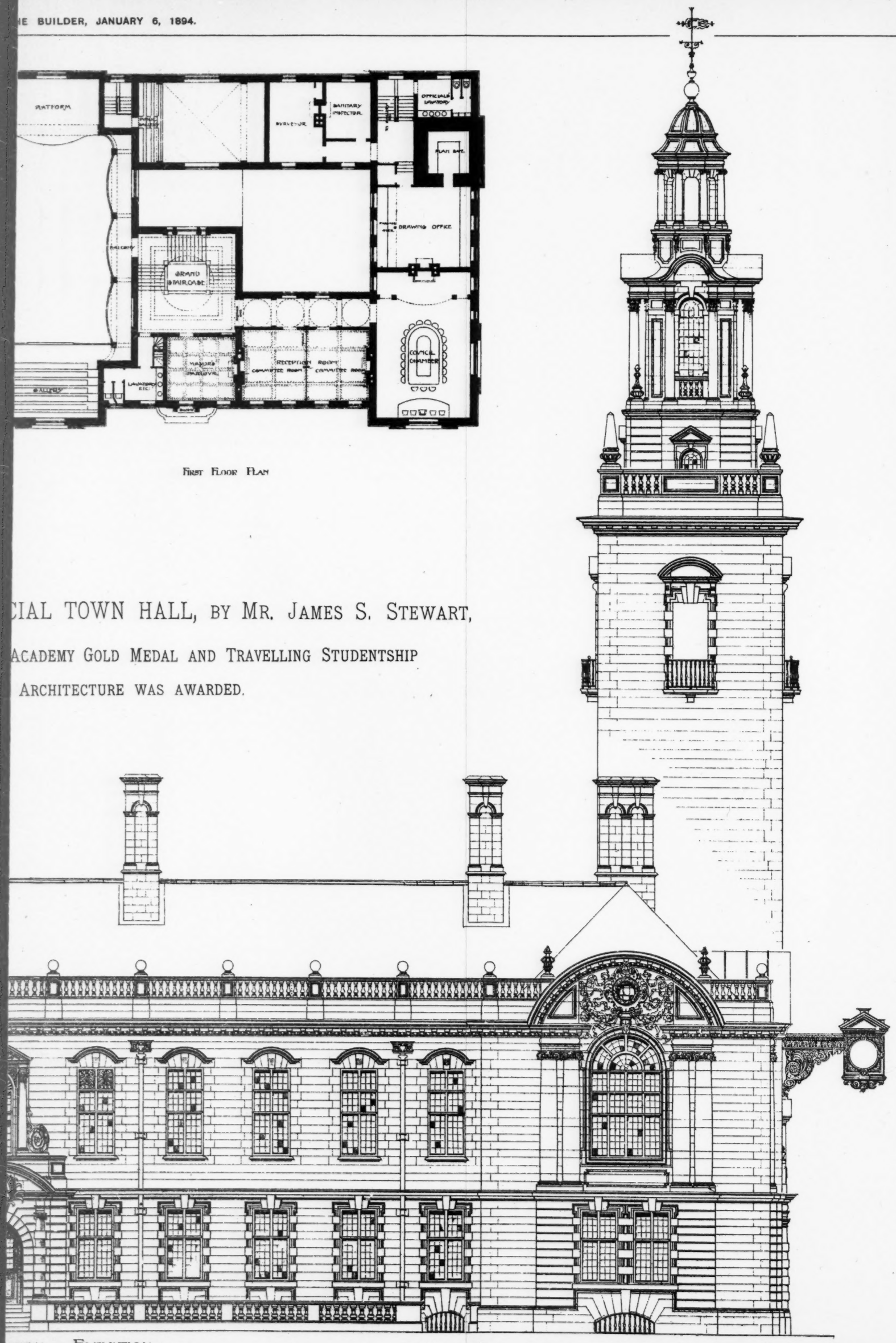
PRINCIPAL ELEVATION

First Floor Plan

CIAL TOWN HALL, BY MR. JAMES S. STEWART,

ACADEMY GOLD MEDAL AND TRAVELLING STUDENTSHIP

ARCHITECTURE WAS AWARDED.



NCIPAL ELEVATION

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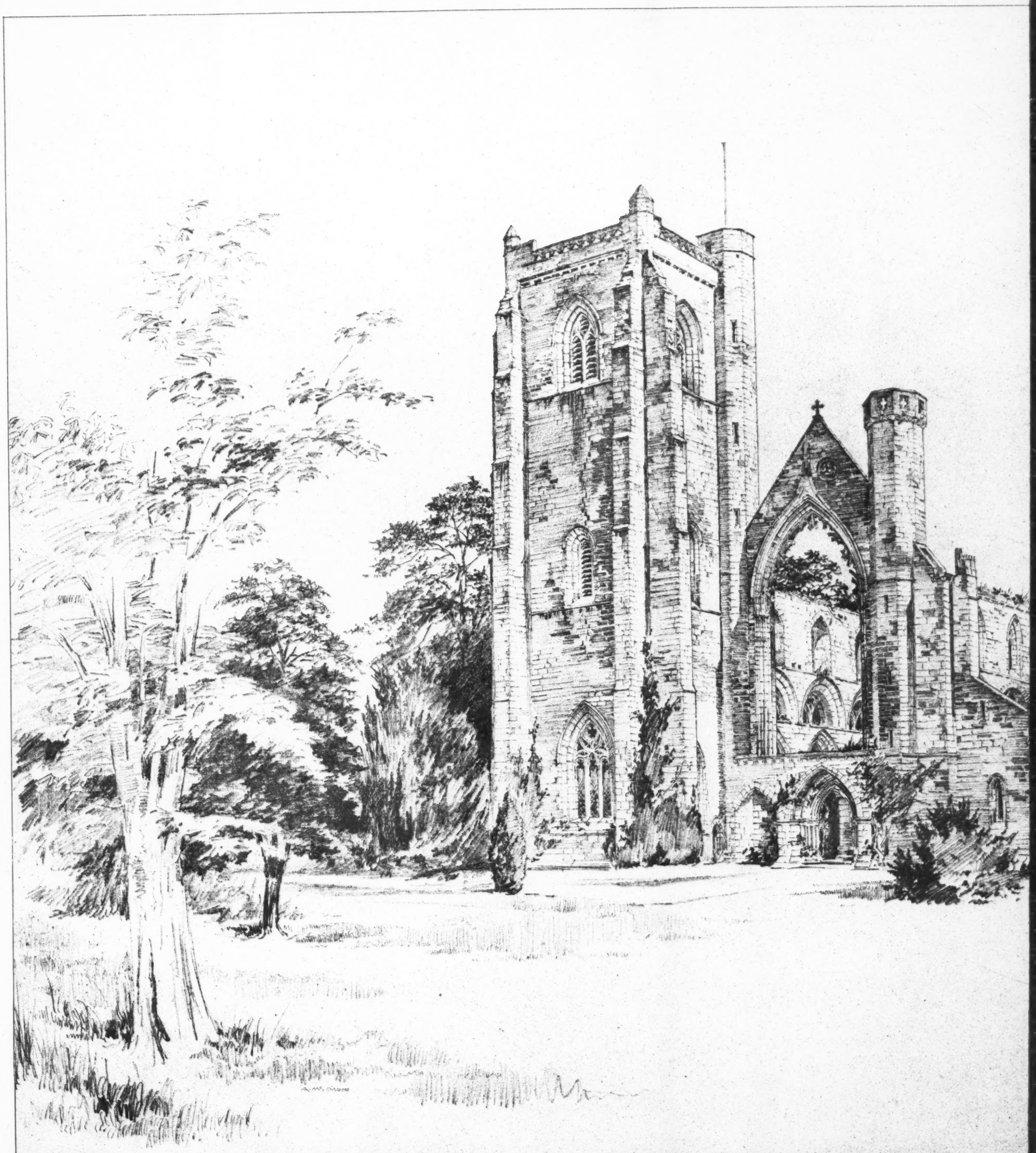

THE ANCIENT CATHEDRALS OF SCOTLAND.—Drawn by Mr. Alexand

No. 7. DUNKELD: FROM THE SOUTH-WEST.

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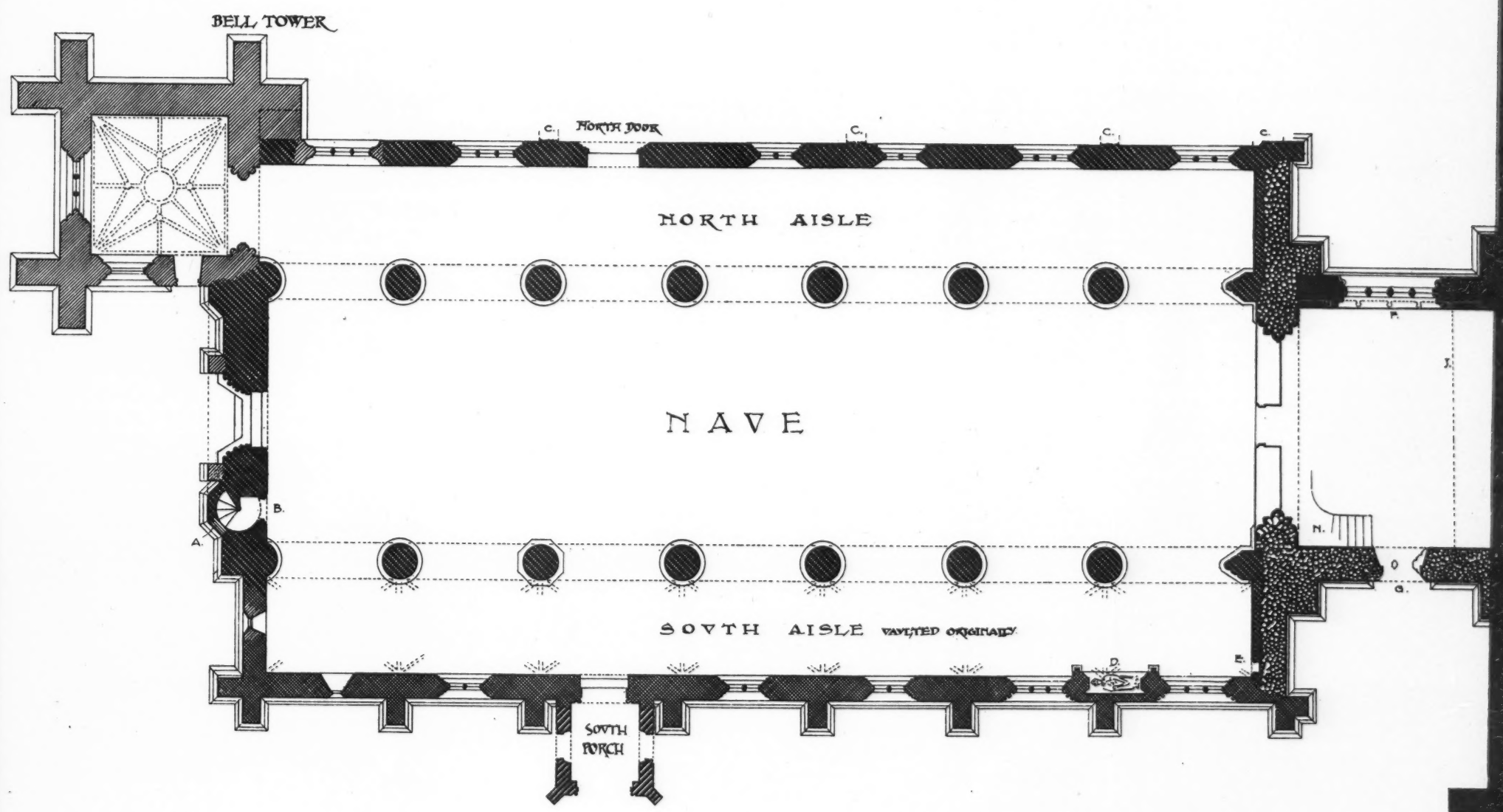
RALS OF SCOTLAND.—Drawn by Mr. Alexander McGibbon.

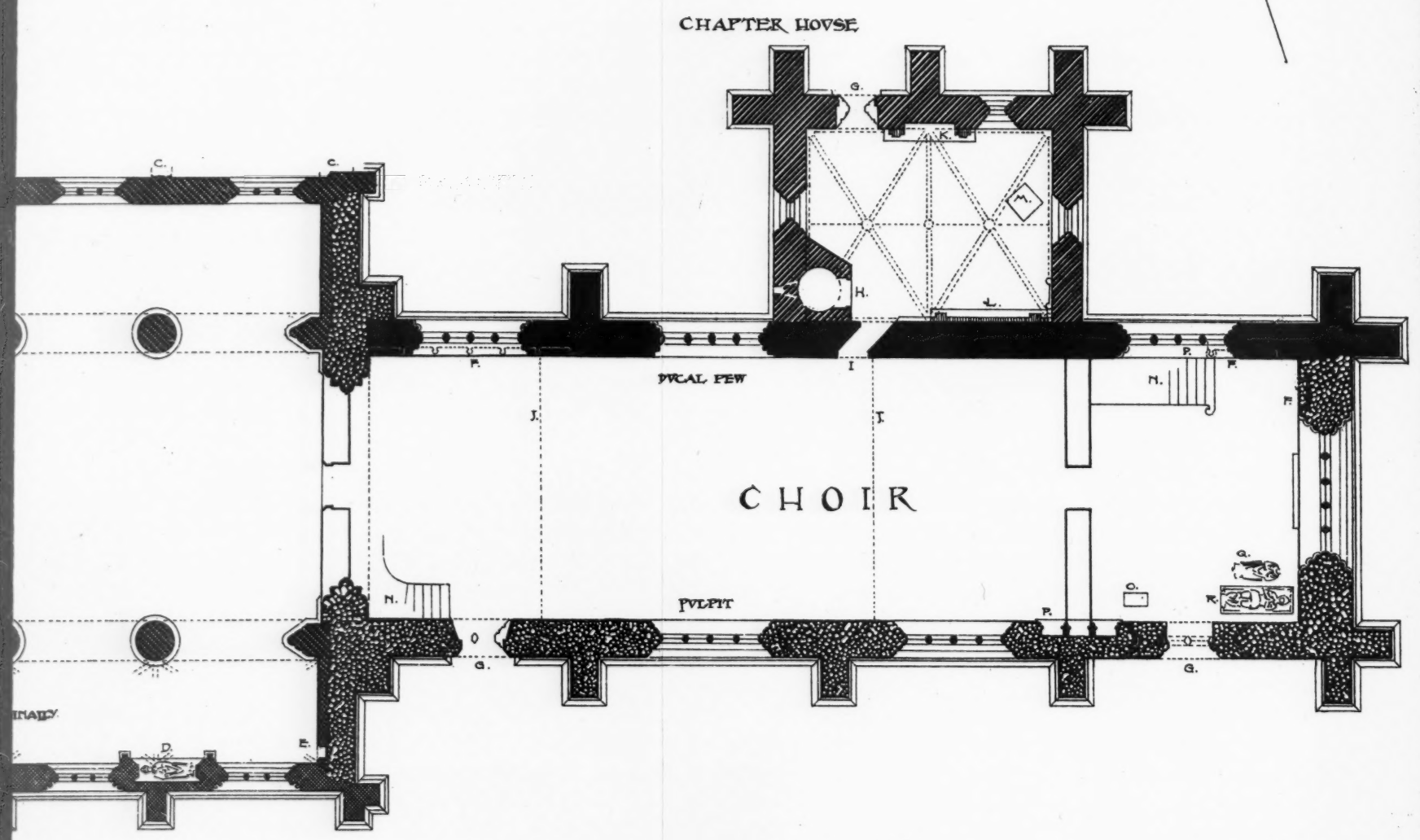
7. DUNKELD: FROM THE SOUTH-WEST.

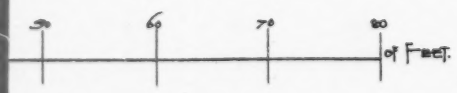
DUNKELD CATHEDRAL

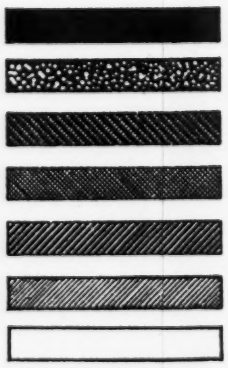


SCALE 10 5 0 10 20 30 40 50 60 70 80 of Feet.

ALEXANDER McGIBBON
MEASURED: OCTR '93.







DATES.

c. 1220–50

1318–37

1406–36

1436–47

1457–69

1469–1501

1762

REFERENCES

A. DOOR BUILT UP
B. SOUTH TURRET STAIR
C. WALLS BROKEN AWAY
D. TOMB: BISHOP de GAINSHEY 1407-36
E. PISCINA
F. WALL ARCADE
G. MODERN DOORS.
H. STAIR to CHARTER ROOM
I. MODERN, on CHOIR SIDE
J. LINE OF GALLERY FRONTS
K. XVIIth cent. MONUMENT
L. HERALDIC MONUMENT
M. STATVE of IVth DUKE of ATHOLL
N. STAIRS to GALLERIES
O. FRAGMENT, CELTIC CROSS
P. SEDILIA
Q. BISHOP SINCLAIR 1712-57
R. SARCOPHAGUS WOLF of BADENOCH d. 1394.

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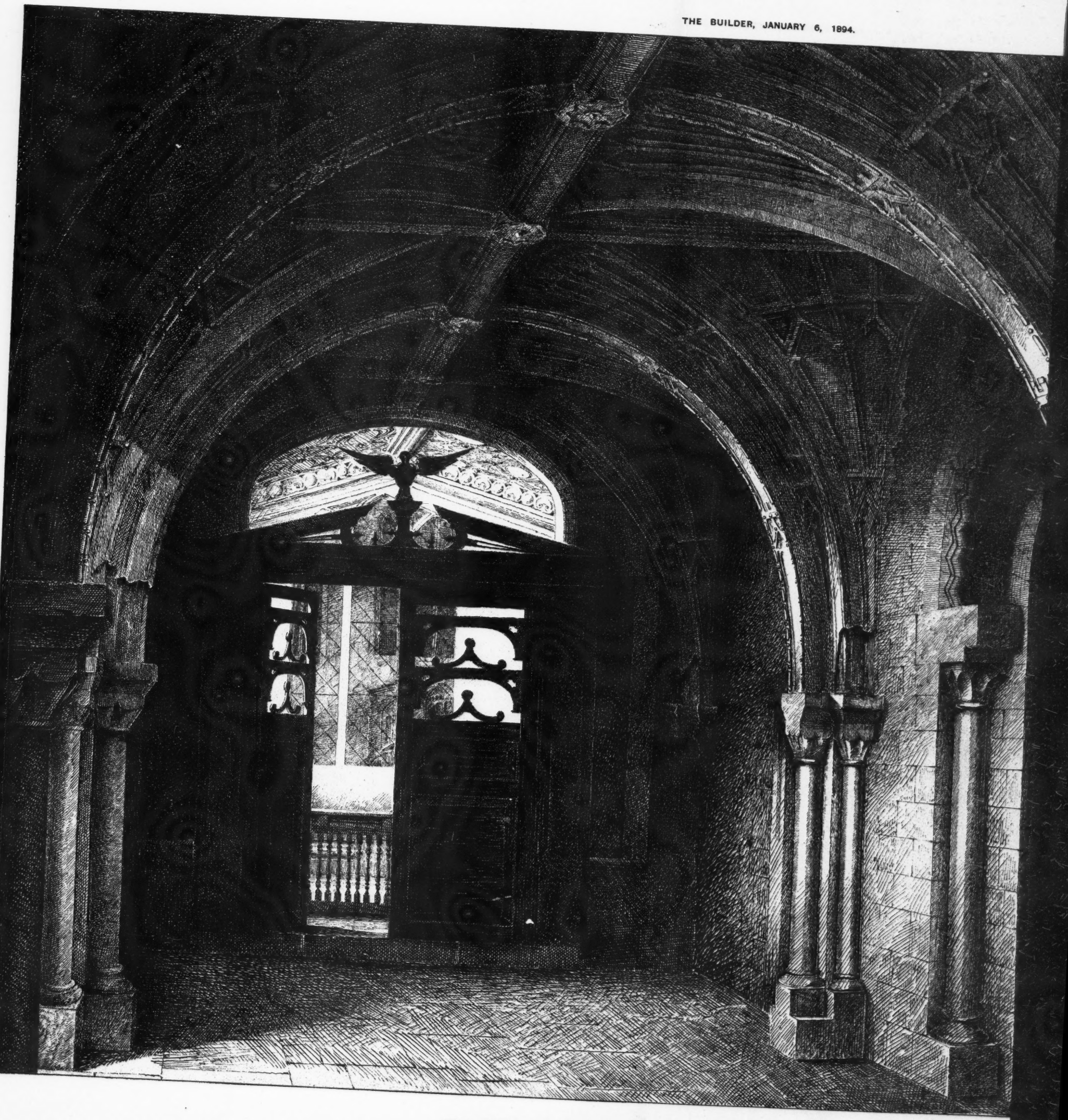

THE ANCIENT CHAPEL OF THE EPISCOPAL PALACE, CHESTER.—Drawn by Mr. T. P. Ivison

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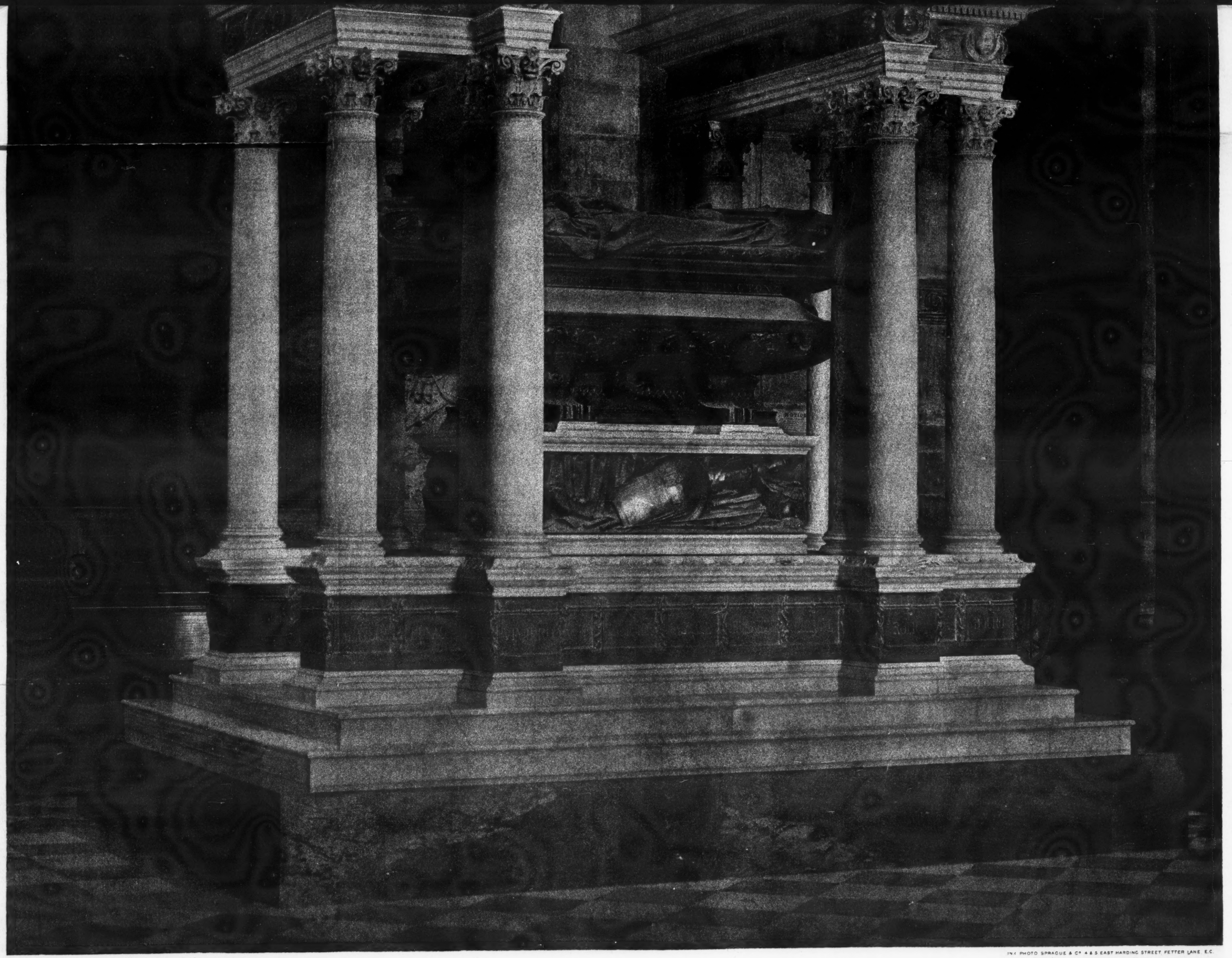
EPISCOPAL PALACE, CHESTER.—Drawn by Mr. T. P. Ivison.



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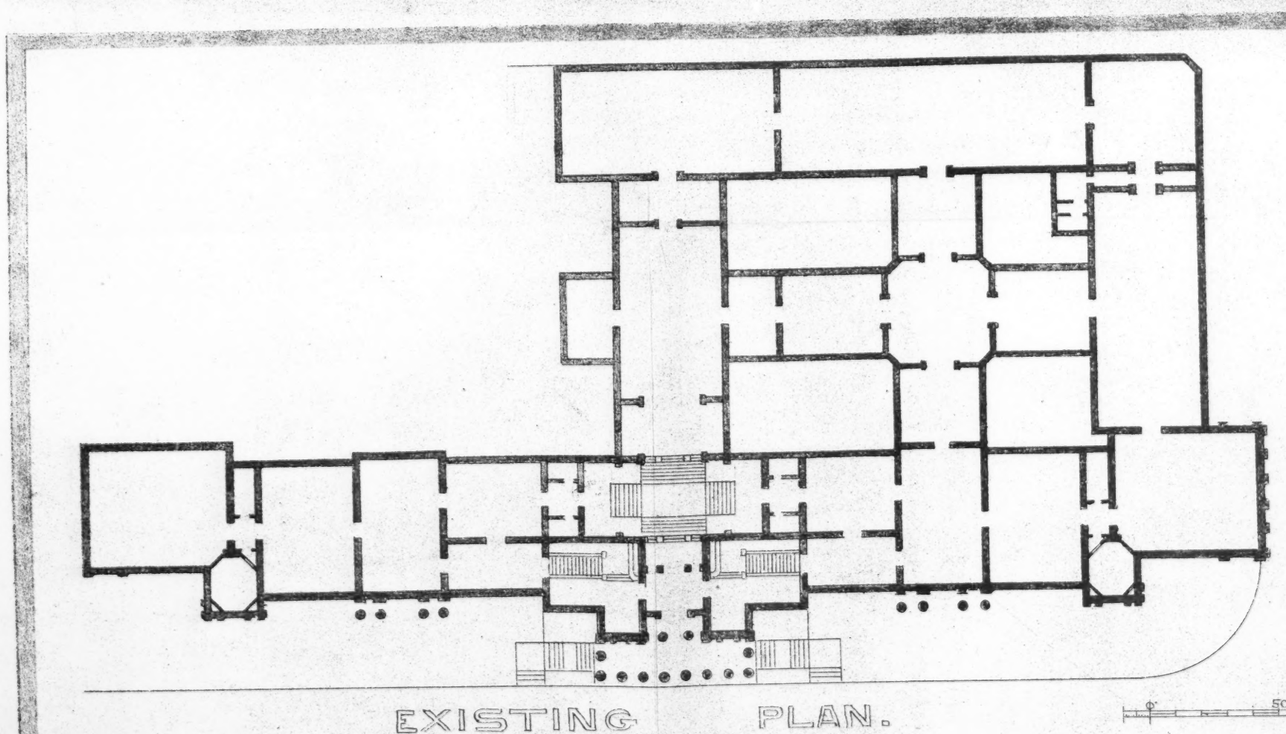
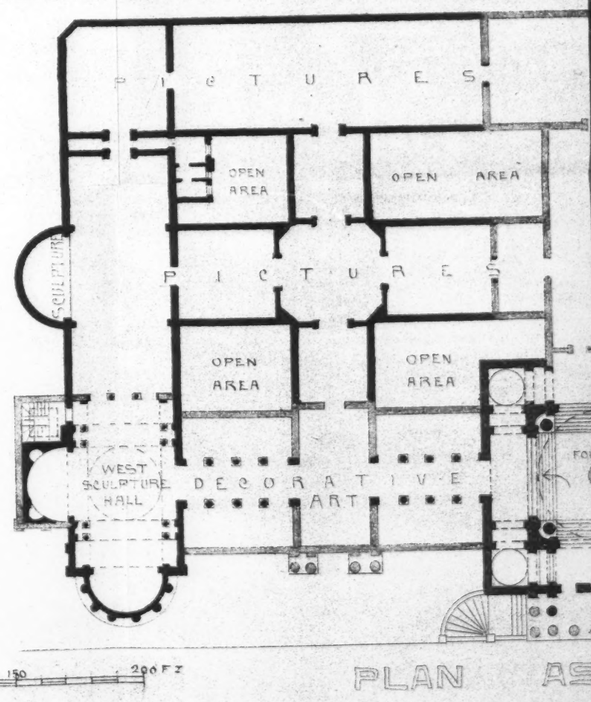
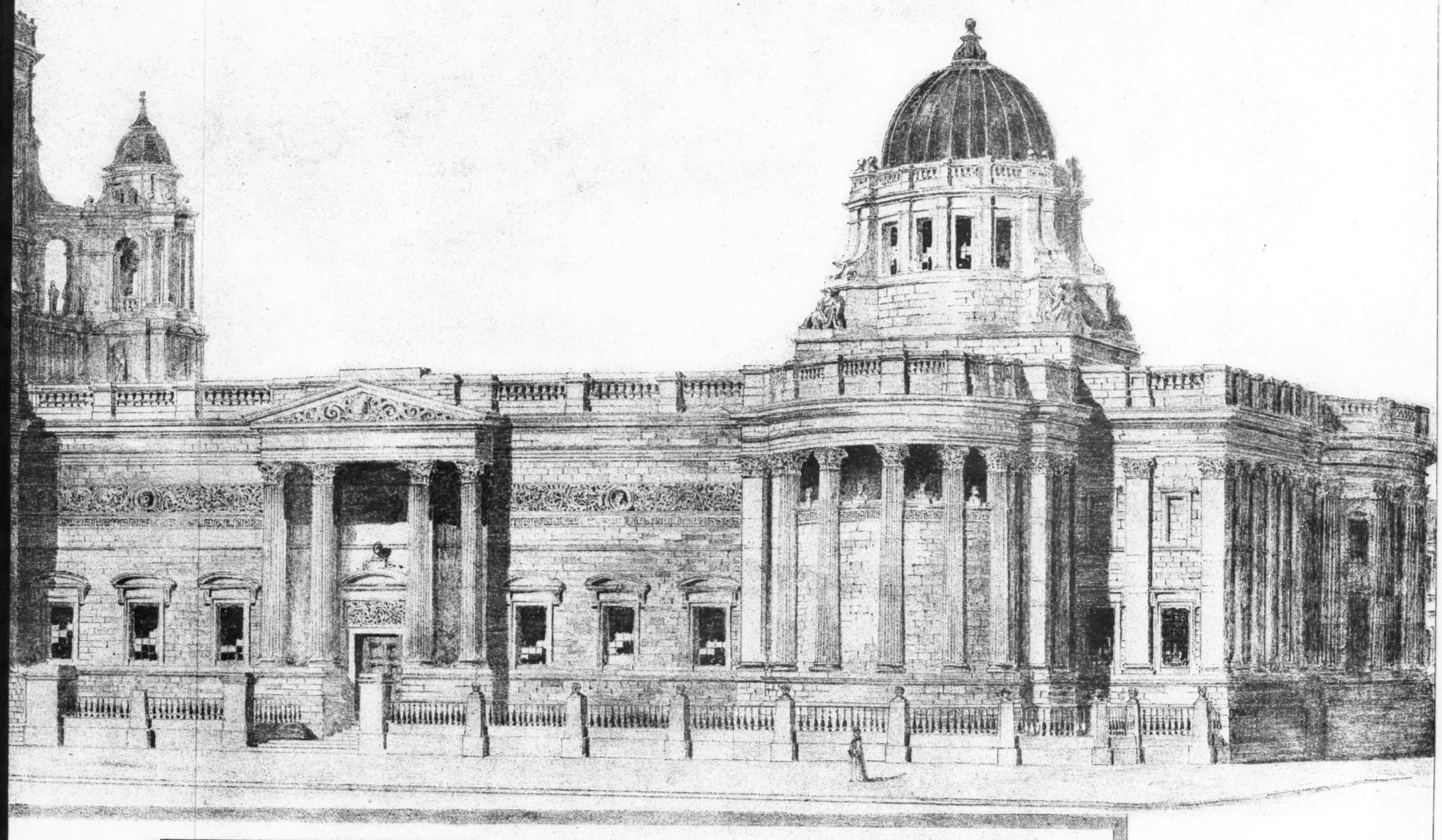
THE WELLINGTON MONUMENT, ST. PAUL'S CATHEDRAL: IN ITS NEW POSITION IN THE NORTH ARCADE OF THE NAVE

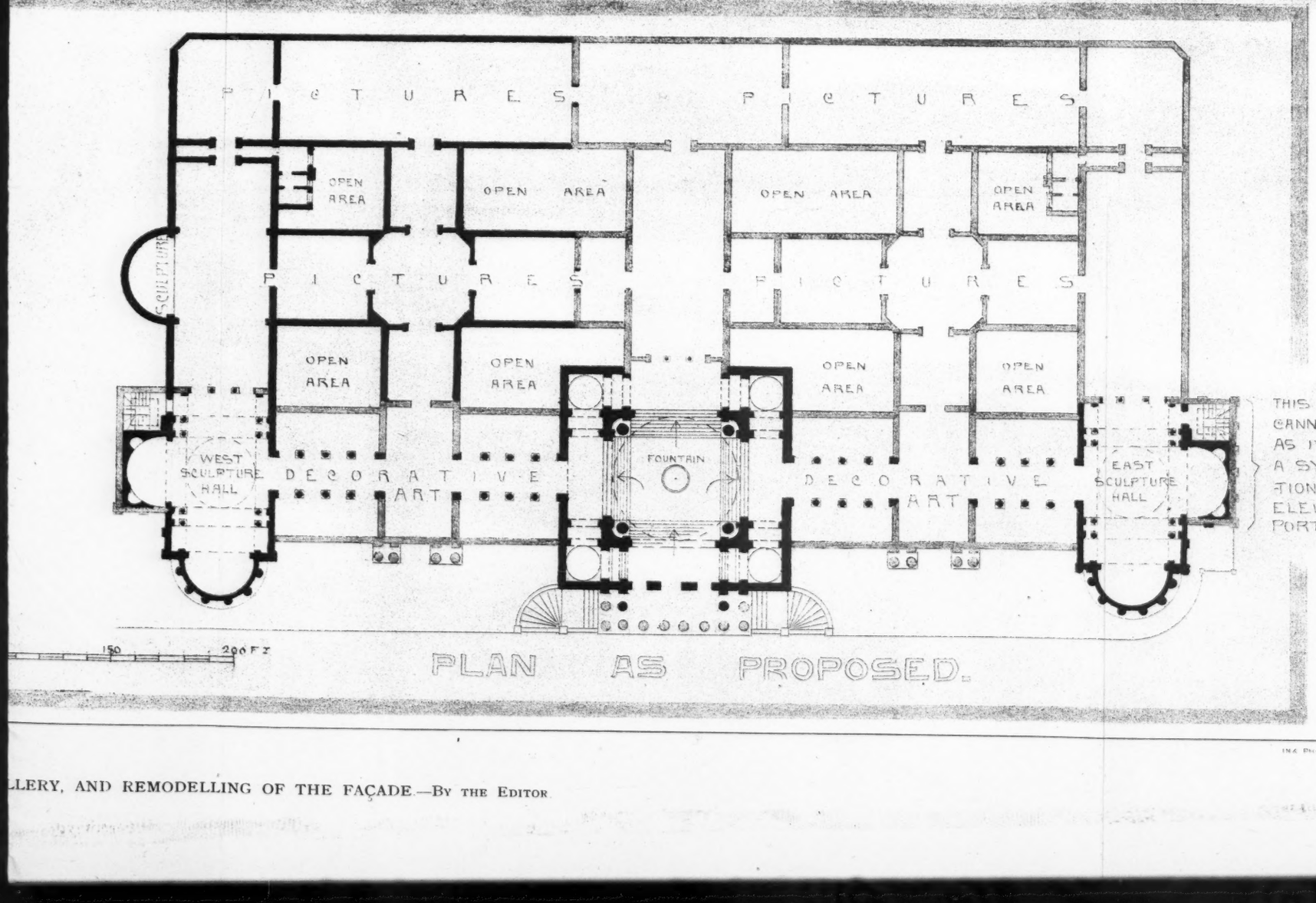
THE LATE ALFRED STEVENS, SCULPTOR.





SKETCH FOR COMPLETION OF THE PLAN OF THE NATIONAL GALLERY, AND REMODELLING OF THE FAÇADE.—By the Editor





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LLERY, AND REMODELLING OF THE FAÇADE.—By the Editor